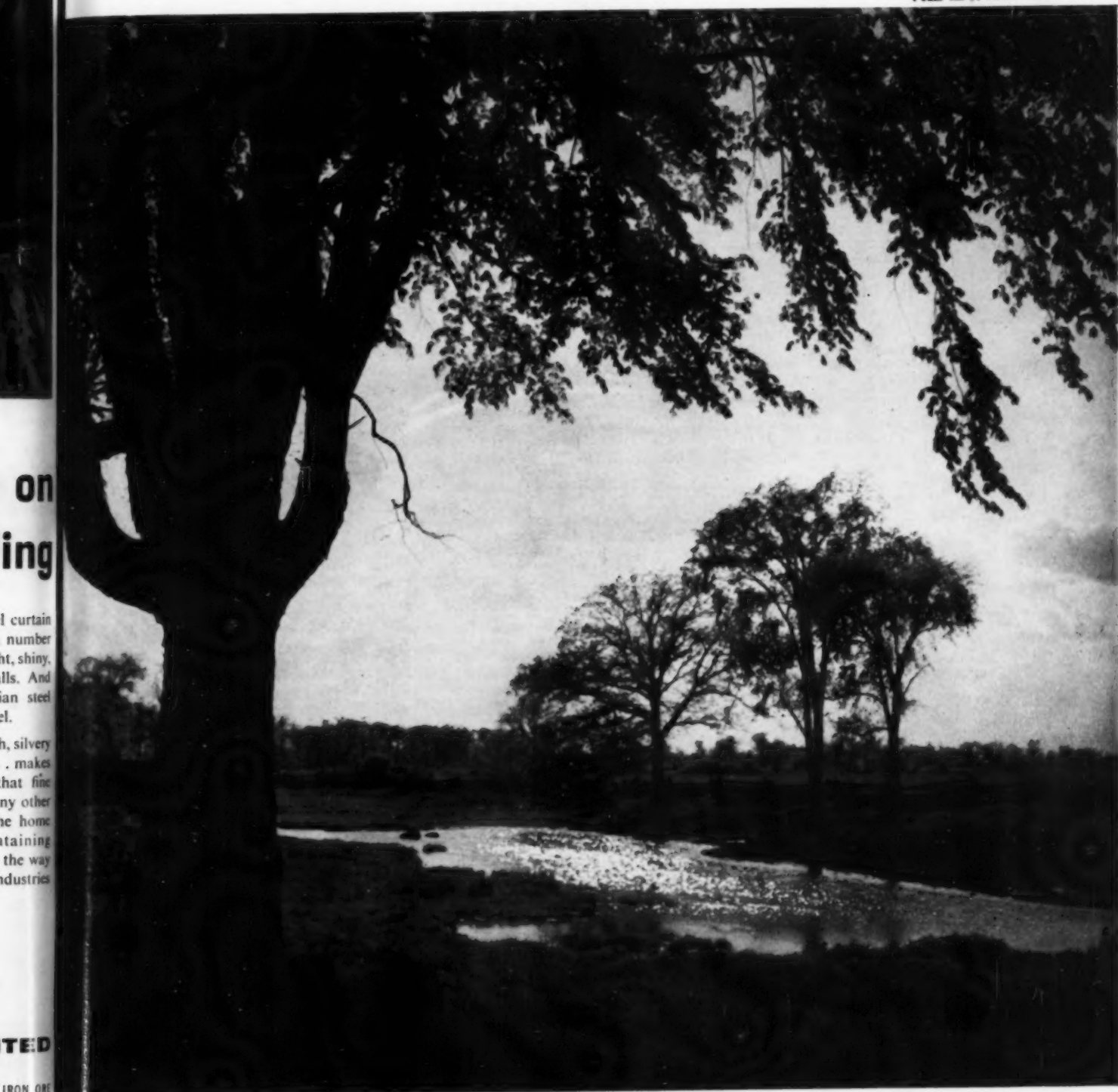


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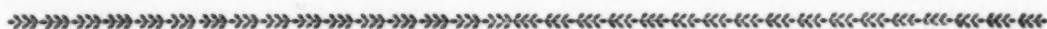
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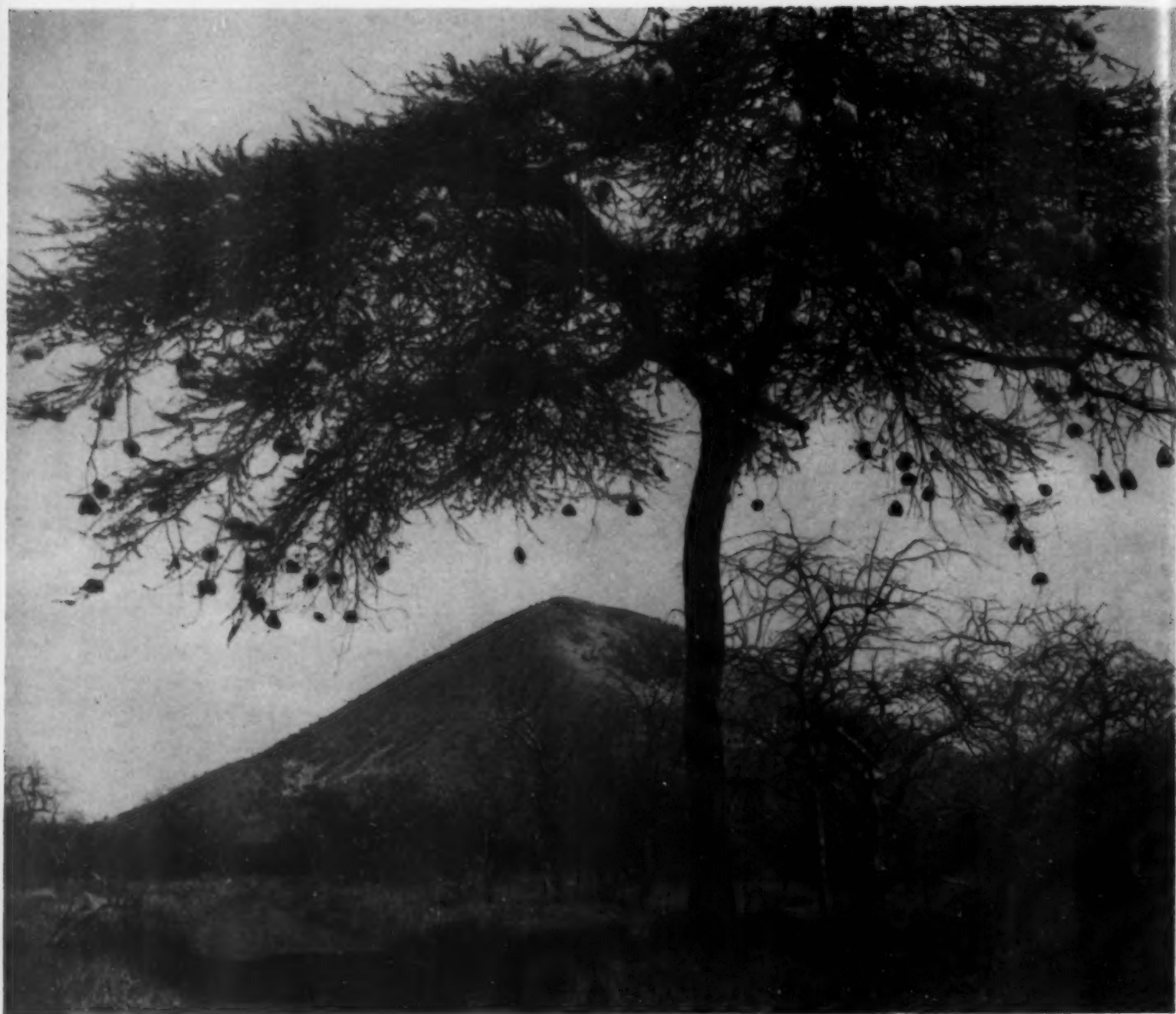
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Throughout Central Africa, the hanging nests of the weaver birds are a delight to the eye. In the dry "winter", leaves fall from the trees in the Serengeti Plains of Tanganyika.

Parks Preserve Africa's Big Game

by LYN HARRINGTON

Photographs by RICHARD HARRINGTON

A North American visitor can scarcely credit his eyes, when he sees immense herds of wildlife on the plains of Central and Southern Africa. Yet for all their vast numbers, the herds are much smaller than fifty years ago. Epidemic, man's agricultural expansion, grass fires, poaching and hunting have all taken their toll.

At the same time, Africa has become increasingly aware of the unique value of its wildlife. Kruger National Park, established in 1898, was the first game sanctuary in South Africa, but that example has been widely followed in other British territories, in Belgian and Portuguese colonies and more recently in French Equatorial Africa.

PARKS PRESERVE AFRICA'S BIG GAME

Since the war, several game reserves have become national parks, such as Murchison Falls in Uganda, with its profusion of crocodiles. New reserves have been established, especially in Northern Rhodesia. Few animal sanctuaries are as well known, and none better developed than Kruger. Royal Tsavo National Park in Kenya with 8,069 square miles is slightly larger, while Kafue Game Reserve in Northern Rhodesia, with 8,650 square miles, is believed the largest of game sanctuaries.

Most game areas are located on light sandy soil, not particularly suited to agriculture. The land may be savannah, studded with flat-topped thorn trees favoured by giraffes, or tumbled rocks haunted by baboons. Some areas include permanent lakes or rivers, but in most these dry up during the long dry season. The forest edging the water is a favourite of elephants, as the tangled brush is of lions, and papyrus swamps are for hippopotamuses.

Many parks offer guide service for a small additional fee, well worth while. The African is merely a guide, not an armed guard, but his alert eyes spot wildlife where the visitor would recognize nothing. A flick of an ear, unnoticed by the average eye, reveals to him a small herd of impala or Thompson gazelles. Though

some guides do not speak English, the visitor soon learns the few necessary native words. The antelope with the sloped hindquarters is the *hartebeest*, he discovers. That tawny animal crossing the road ahead is *simba*, lion in Swahili. Where trees have been knocked over, the word *tembo* reveals this as elephant's play.

On the road ahead of the car, francolin scuttle along in the dust, to whir away a few feet above ground. Doves call incessantly throughout the day, their notes varying according to species. Something like an extremely large hare may start up beside the road, or bound across to the other side. This is the dikdik, a very small antelope. Or at night, the headlights may pick up the spotted ringtailed serval cat, or the cringing lope of a hyena.

It is astonishing how stripes, spots and blotches act as camouflage in the dappled shade of thin forest. Even on the open plain they are hard to discern. The black and white stripes of the zebra merge into grey, much like the rocks of the veld. One may stare at a fever-tree for seconds before realizing that a long-necked giraffe is gazing back with equal curiosity.

Some of the largest concentrations of wildlife, such as those of the Serengeti Plains in Tanganyika, owe their existence to the tsetse

Nairobi National Park is a fifteen-minute drive from the centre of the city, and is crowded with African wildlife. This is the main entrance.





Giraffe and zebra are often found in company in thorny thickets, as in Amboseli Game Reserve, Kenya.

fly, which has made large regions uninhabitable for cattle. "Our thanks go out to the tsetse fly for having preserved this part of Kenya from any form of development," states the Kenya Wild Life Society, referring to Trans-Mara Game Reserve.

Yet the tsetse has brought death to others. Requiring land that could be ranched safely, Southern Rhodesia, Sudan and Uganda embarked on campaigns to destroy wildlife known to carry the virus of sleeping-sickness. Close to a million animals have been destroyed in the campaign nearly ended. The animals are segregated, their reserves surrounded by a wide "clean" belt across which the tsetse cannot fly. Any animal, wild or domestic, crosses that belt at its peril. In fact, part of Queen Elizabeth Park, Uganda, is closed to humans to prevent transmitting the virus.

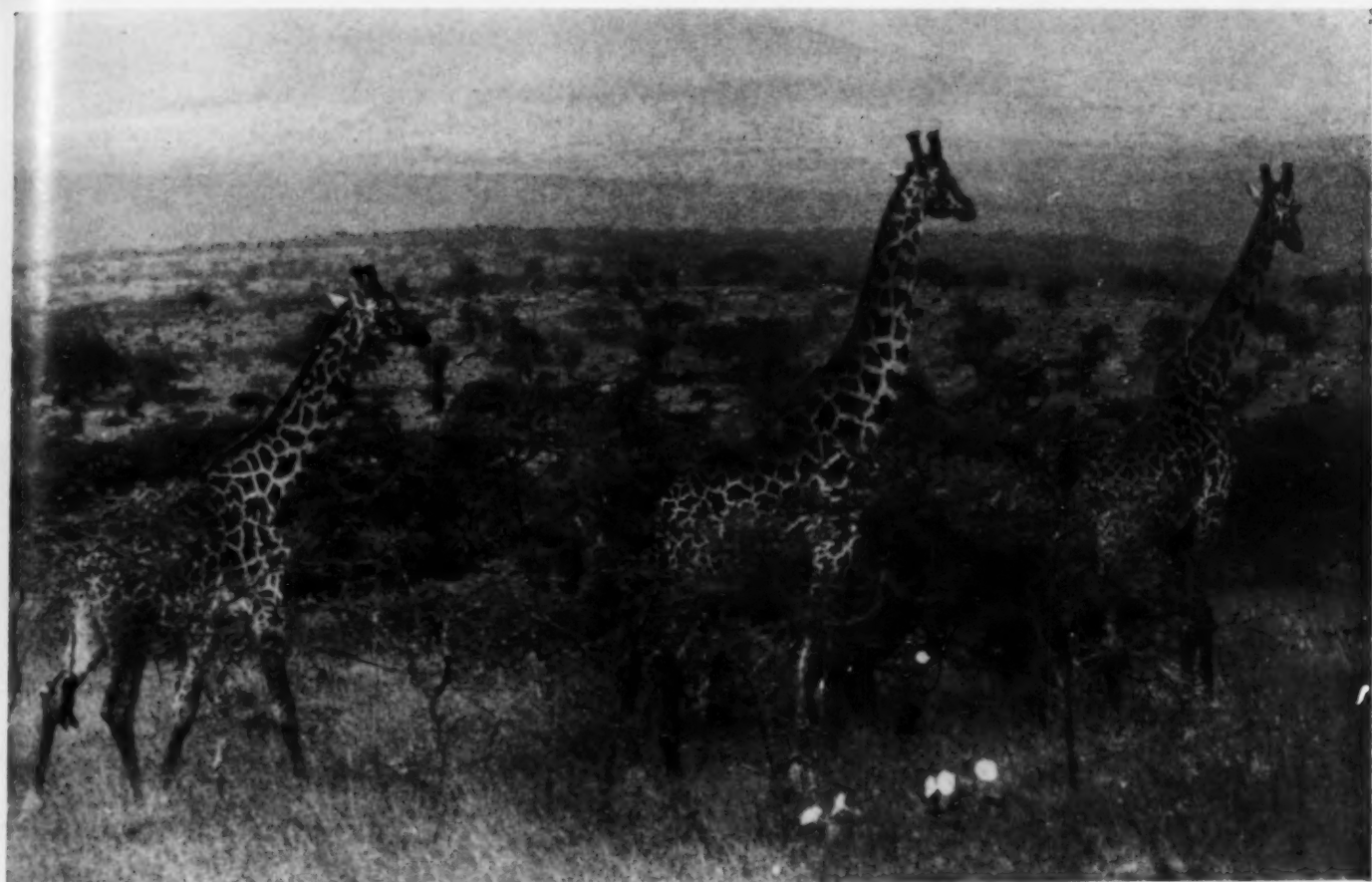
South Africa has undoubtedly the greatest profusion of animal preserves, with at least twenty in Natal Province. Among the most recent is the Gemsbok National Park, established in a corner of the Kalahari Desert to protect dwindling herds of gemsbok or Cape

oryx. This beautiful antelope, with markings of black on tan and lancelike horns, is now secured to posterity. Here, too, graceful springbok are found in dense herds, and hundreds of red hartebeest and eland.

Another specialized sanctuary is Addo Elephant Park in Cape Province, containing a breed of tuskless, oval-eared pachyderms. Main attraction of the Hluhluwe Game Reserve in Natal is the rare white rhinoceros. As it lacks carnivorous beasts, visitors may stalk game on foot there, escorted by a vigilant unarmed ranger.

Kruger remains "the king of parks", not only because its immense herds of Cape buffalo and zebra and prides of lions have become accustomed to cars and whirring movie cameras, but because of the accommodation provided for 130,000 visitors a year. Since the park is 200 miles long, and averages forty miles in width, the half-dozen camps are within easy driving distance of one another, and linked by 1,500 miles of good earthen roads.

In most parks, visitors are warned not to get out of their cars, except within camp.



Giraffe rarely are found alone and usually are seen in family groups. They travel across the country with a peculiar rocking gait, pausing often to look back. Serengeti Plains, Tanganyika.

"These are wild animals," they are reminded, "and regulations are laid down in the visitor's own interests." These parks are zoos in reverse, with the visitor inside the cage of his car by day, and within wire fencing at night. This is the kingdom of animals, and they roam free.

A speed limit of twenty-five miles an hour is enforced. Noise and dust scare the animals away from the roads, thus impairing the pleasure of following motorists. More important, frights are apt to disturb the breeding schedule.

The parks are usually closed to the public during whelping, when the animals are especially nervous. That this coincides with the wet season, when earthen roads may become bogs and mosquitoes are numerous and malarial, is purely secondary.

Nor may visitors drive off the road across the plain in pursuit of game, nor park out overnight. This is asking for trouble from the beasts, and no less, from park authorities. While ordinarily visitors must be off park roads and in their camps by sunset, Wankie Game Reserve in Southern Rhodesia offers an

unusual opportunity. Under the protection of a game guardian, visitors may climb water-towers on nights of full moon, and watch the animals come to drink.

Accommodation throughout the national parks and game reserves varies considerably. Many have full-fledged hotels within the boundaries. Others have individual accommodation, such as rondavels in Kruger and Victoria Falls Parks, brick cottages in Tsavo, and papyrus-thatched rooms in Queen Elizabeth Park. Most of these are served by a dining room. More numerous are rest camps, or safari lodges, to which the visitor brings his own bedding, food and cooking utensils, as in Northern Rhodesia's Game Viewing Camps. Frequently a hotel or motel on the outskirts of the park caters for visitors, as at Amboseli in Kenya, and Albert Park in the Belgian Congo.

National parks or game reserves are rarely fenced, both because of their size, and because the animals, or the Africans, would simply break down the fences. To keep wildlife within the areas, officials have devised several meas-

ures, although they interfere little with the habits of the animals.

Vegetation is of primary importance to herbivorous animals, such as the hippopotamus, antelope and buffalo, so there must be plenty of grass. The frequent grass fires that sweep across the land keep the brush burned back, and elephants tearing up trees clear open glades. In some parks, Africans are employed to cut out the brush for the benefit of grazing animals. They are careful to leave vegetation preferred by the browsing animals, such as the black rhinoceros, and the thorny acacia for the giraffe.

Where there are grazers, the lion does not stray far. Essentially lazy creatures, lions like their meals close at hand, and in game reserves they have no reason to go hungry. On their trail come the jackal, and the hyena, ill-equipped to hunt for itself, and vultures that descend in startling numbers to finish the scavenging.

Important as food may be, water is even more vital. In most parks, dams have been scooped out of the sandy plains to create water-holes. Windmills pump water from far underground where rivers are merely sandy beds in the dry season. Kruger Park has eighty-two windmills in operation, although it also has several permanent rivers. Water is always a problem in African game sanctuaries. For if the water supply fails, the animals must range outside the boundaries to compete with domestic animals, ruin crops, and perhaps fall to hunters. In Tsavo Park, the Voi River has been impounded to form several lakes for the benefit of game and many species of water-fowl.

On occasion, it is advisable to move animals from one area to another, sometimes because of overgrazing. Kruger Park is now "seeding" some areas with zebras, wildebeests (gnu) and giraffes to build up their populations. It may be advisable to introduce predators in some

Dainty timid impala gather in large herds on the plains of Central Africa, and in the thickets of Kruger Park, as shown here.







Elephants are dangerous, and the distant view is strongly recommended to all visitors.

A close-up view of a giant male elephant crossing the veld in Kruger Park.

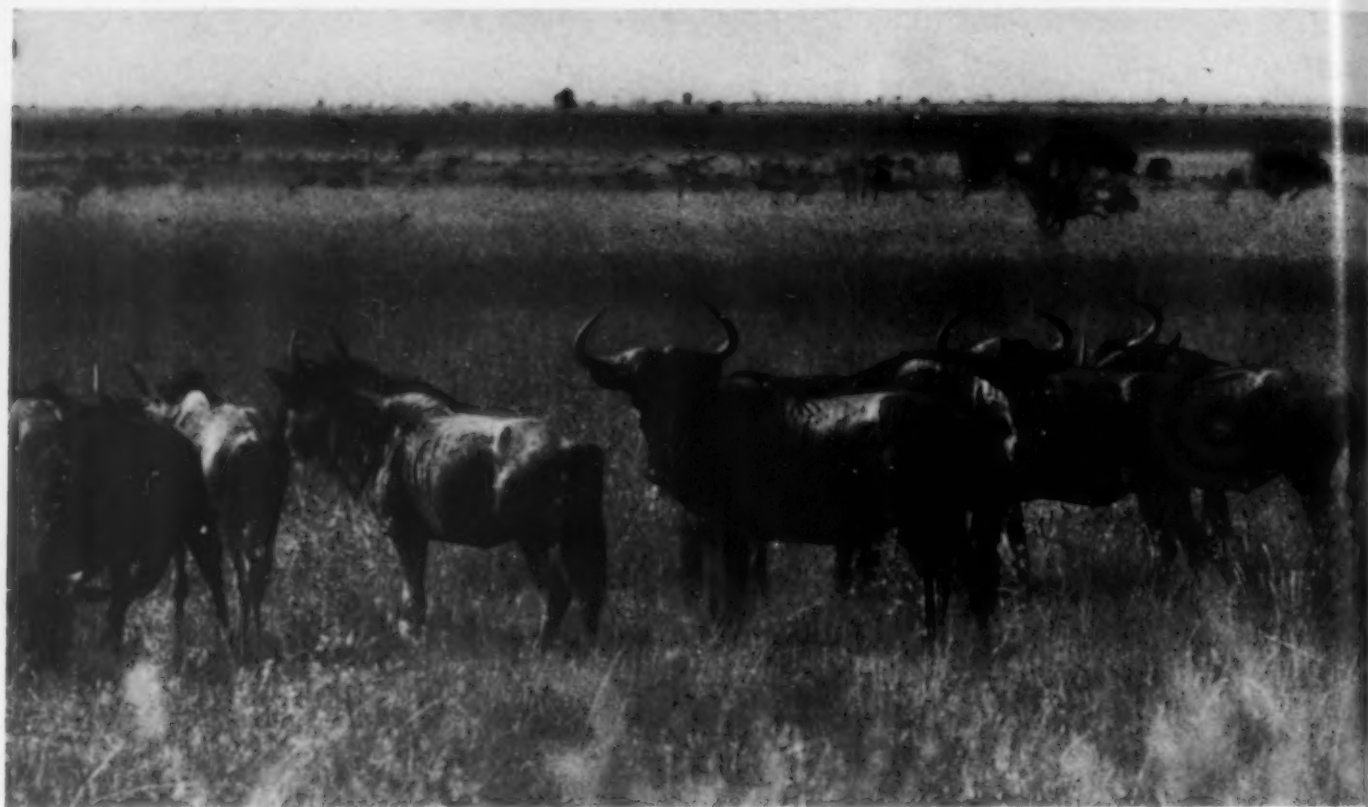




Close-up view of three camera-shy hippopotamuses, rising from their mud bath in Queen Elizabeth Park, Uganda.

Hippopotamuses like to soak themselves all day in the water, and the muddier it is the better they like it, Queen Elizabeth Park, Uganda.





Wildebeest (or gnu) in Kruger Park. They range in great herds across the veld though thousands of them have been slaughtered because, in common with most of the larger South African fauna, they carry the virus of sleeping-sickness, without being affected by it themselves.

instances. When baboons became too numerous in Tsavo—they are very destructive of bird life—a leopard was live-trapped elsewhere and released in the national park. The baboon population fell back to normal.

Certain species require special protection. In order to build up the eland herd in the western portion of Kruger, park authorities destroy the lions. Otherwise, those animals, largest of the antelopes, depart. Lions may roam at will elsewhere in Kruger. Park rangers keep a close watch on their wards, and an impala gored in a fight is put out of its misery, for a wounded

animal quickly becomes septic, and officials dread the possibility of an epidemic. A zebra badly clawed by a lion, a hippopotamus torn by a crocodile, or a rogue elephant that holds up traffic, terrifying visitors, may be dispatched.

Another means of keeping the animals in the reserves is to keep humans out. For this reason, parks are usually closed during the fawning season for bearing young. South Africa recently created several new parks to reduce the tourist pressure on Kruger. In the Congo, the gorilla sanctuary of Albert National Park is strictly reserved for scientific study, and is by no means open to every scientist.

Wild animals of Africa attract tremendous interest, and not only from big-game hunters. Many visitors prefer to study game through the view-finder of a motion picture or still camera. Some outfitters now specialize in photographic safaris. Certainly no mounted trophy can compare with films of wildlife on the veld and around the water holes. Except within game parks, it requires almost as great an investment—and more skill—to film an African lion as to shoot it with a high-powered rifle. "Just looking" has become profitable in Africa, and from the monetary angle alone, these noble beasts are worthy of protection.

Visitors to Kruger Park may stay in comfortable grass-thatched rondavels, which are small circular huts; cooking shelters are set up at regular intervals, each with its own attendants, as many visitors prefer to cook their own food.





Storks, cormorants and pelicans multiply where water is impounded and form very large colonies. A representative group beside Kazinga Channel, Queen Elizabeth Park, Uganda.

In spite of all the big game safaris that have filled their trophy licences in Africa, hunters make a very small impression on the vast herds. Settlers hunting "for the pot" take a few more. Africans are not allowed to carry fire-arms as a rule, and with their spears, bows-and-arrows or snares, they take a relatively small number. The quantity increases, however, in years when the mealie (maize) crop is poor. An appetite for meat is rising in Africans, but tribes with money prefer to buy from poachers rather than slaughter their cherished cattle.

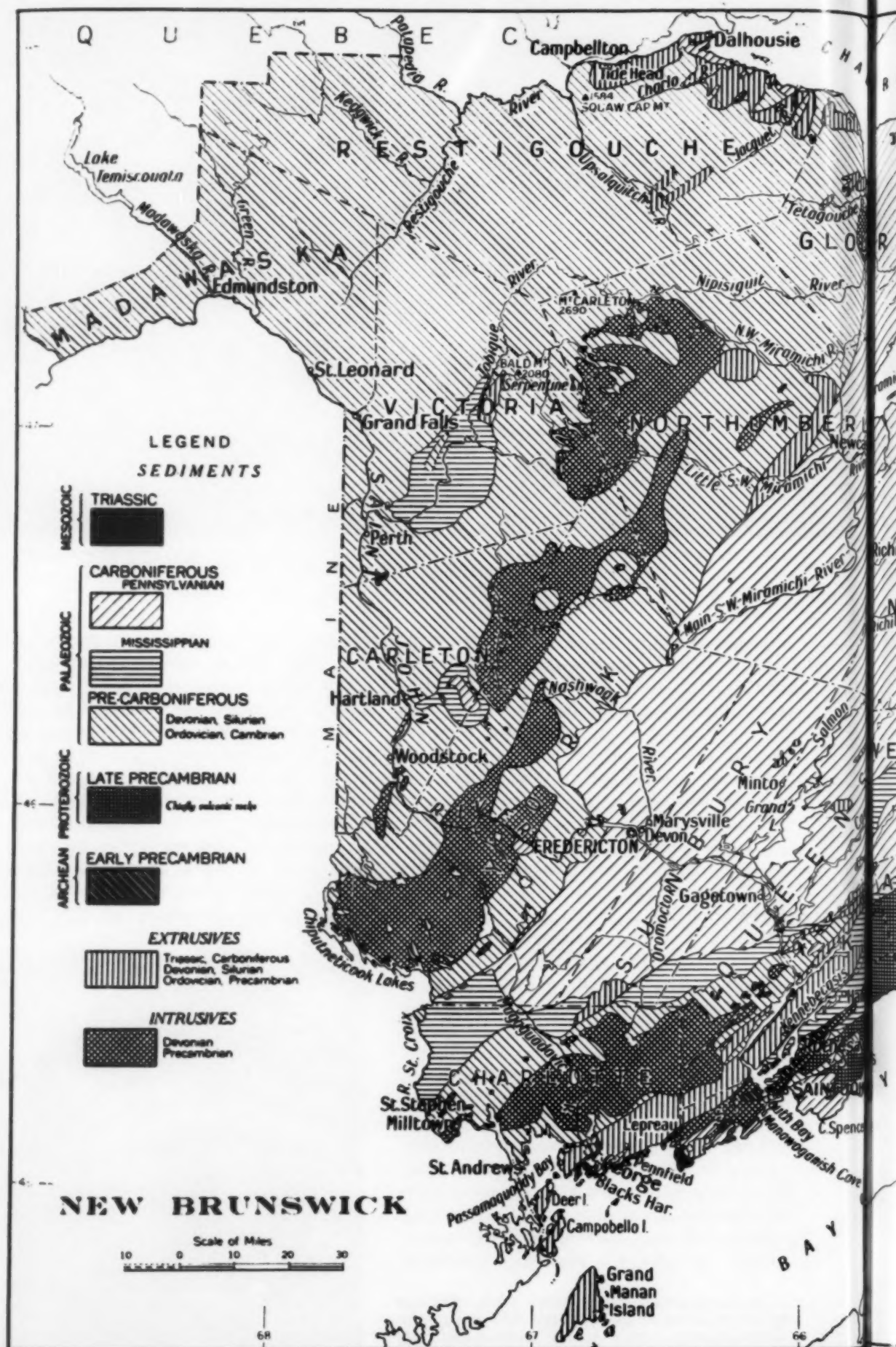
Hunting tribes are glad to oblige them. Easily trapped, the giraffe provides a large quantity of meat, and its sinews make good bow strings. But there is great waste, as in all poaching. The massive rhinoceros is a favourite victim, killed solely for its horn. Those spikes of hair, hard as bone, are sold to a middleman, then ground up for use as an aphrodisiac in Oriental countries. Poaching for elephant ivory still goes on, although the hunter receives only a few shillings, nowhere near the re-sale value. The great beasts are shot with poisoned arrows, and the meat is wasted.

With increasing independence, one wonders whether Africans will preserve the national

parks and game sanctuaries. Pessimists believe that under African rule, the game would be wiped out in a very short time. Even now, Africans resent the space occupied by wildlife sanctuaries. According to a government statement, in game reserves as opposed to national parks, "the wild animals are preserved only so long as they do not cause inconvenience to the peasant farmer." So they are expendable. To preserve these faunal sanctuaries, they must be elevated to the status of national parks, no easy legislative matter in the face of African pressure for more farmland.



Palm trunks and papyrus thatch form attractive lodges at Queen Elizabeth National Park, Uganda. A ranger with a spear escorts diners home from the main lodge after dark.



Mining Progress in New Brunswick

by J. C. SMITH

THE FIRST official systematic study of rocks and minerals in Canada was begun in 1838 with the appointment by the Government of New Brunswick of Dr. Abraham Gesner as the first Provincial Geologist. From 1839 to 1843 Gesner carried out extensive investigations and published five annual reports on his findings. He summed up his conclusions as follows: "New Brunswick is abundantly stored with valuable minerals and those elements that are capable of elevating the character of the country, and of supplying the means of strength and greatness."

Gesner was followed by Dr. J. Robb and Dr. L. W. Bailey, both professors of Natural History at the University of New Brunswick. In a report written some ninety years ago Bailey stated: "I may yet say that in no part of the province have I been so much pleased with the prospects of mineral wealth and the probability of valuable discoveries as in the eastern portion of Gloucester County . . . I have no doubt that the discovery of extensive and valuable metalliferous lodes would be the reward of a thorough and intelligent exploration of this district." Following Confederation in 1867, the Geological Survey of Canada took over active geological investigation in the province and still continues to carry out such work. One important way in which it has been of assistance to those carrying out prospecting operations has been through the issuing of aeromagnetic maps showing the variations in local magnetic intensity indicating zones of possible mineral concentration. Recent search using modern methods and information has, through the finding of important ore-bodies, proved the validity of Bailey's prediction. It is with the story of these finds that the present article is chiefly concerned.

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Left:—A geological map of New Brunswick.



Topography

From the point of view of topography New Brunswick falls naturally into four main divisions. Along the Bay of Fundy, stretching from St. Stephen in the south-west to Moncton in the north-east, is an upland region with elevations up to 1,400 feet above the sea, known as the Southern Highlands. The oldest rocks of the province are in this belt. The second division is the Central Highlands, which merge with the Southern Highlands in Charlotte County and run through the central portion of the province to Bathurst in the north-east. The highest summit is Mount Carleton in Northumberland County which reaches an elevation of 2,690 feet. Other summits rise to heights of over 2,000 feet. This is a wooded region abounding in lakes and streams and noted for its wild-life and game fish. The Bathurst-Newcastle area in the north-eastern portion of this belt contains the lead-zinc-copper deposits discovered in recent years. To the north-west of the Central Highlands lies the Northern Plateau region, reaching elevations of about 1,000 feet. Its flat-topped surface is deeply incised by the valleys of the Restigouche River and its tributaries. The fourth division, the Eastern Plain, lies to the east of the Central Highlands and slopes gently down to the Gulf of St. Lawrence and Northumberland Strait. This area is underlain by flat-lying or little disturbed Carboniferous rocks and contains the coal deposits of the Minto-Chipman district.

Geology

Man has had a written history of over 5,000 years, and New Brunswick one of less than 400 years. The history of the province, as recorded in the rocks, covers, however, a span of perhaps two billion years marked by alternating catastrophic events and periods of relative quiet. During this long time mountains were built, volcanoes spewed forth fiery lava flows and fragmental material, and the earth's crust was folded and fractured. Subsequent to these diastrophic times long-continued erosion reduced the region to low relief. This sequence of events has been repeated time and again during this long period.

Precambrian

The oldest or Precambrian rocks of New Brunswick cross the Saint John River between Saint John City and Grand Bay to the north and may be followed north-eastward along and south of the Kennebecasis River for twenty-five miles. Similar rocks may be traced some ten miles south-eastward from Saint John to Mace's Bay on the Bay of Fundy and on to Grand Manan and the intervening islands. An older division, designated as the Greenhead Group, consisting chiefly of limestone, dolomitic limestone and quartzite, is possibly of Archaean or Early Precambrian age. It can readily be seen in Saint John city, rising in the white cliffs of Fort Howe. Overlying the Greenhead rocks unconformably is a younger group called the Coldbrook of Proterozoic or Late Precambrian age. These rocks are mainly volcanics and occupy a belt extending from Saint John north-eastward for seventy-five miles along the Bay of Fundy to the Petitcodiac River; they also underlie Kingston Peninsula and extend south-westward to the Fundy shore at Beaver Harbour. Deep-seated igneous rocks were intruded into the Greenhead and Coldbrook groups in Precambrian time. They consist of granite, granodiorite and quartz-diorite.

Palaeozoic

Precambrian time was succeeded by the Palaeozoic era, the time of ancient life, lasting some three hundred million years. Most of the rocks which make up the present land surface of the province were formed during this time. They can be divided into two major divisions, the Carboniferous and pre-Carboniferous. The latter extend from Charlotte County through the western part of the province to Bathurst in the north and along the Bay of Fundy. Cambrian sediments occur in Saint John city and vicinity. Ordovician and Silurian rocks are present in the Bathurst-Newcastle area. Lower Devonian sedimentary and volcanic rocks can be readily studied at Dalhousie in the Chaleur Bay region of Restigouche County. The Central Highlands, forming the back-bone of the province, consist to a large extent of batholithic masses of granite intruded in Middle Devonian time. Upper Devonian clastic beds



The Restigouche River, with Sugar Loaf Mountain in right background.

near St. Andrews in Charlotte County contain boulders of this granite showing that it had been locally unroofed by that time.

Rocks of Carboniferous age underlie eastern and most of south-eastern New Brunswick, an area of some 12,000 square miles. They contain the coal, oil and gas and gypsum occurrences.

Mesozoic

Rocks formed in this era in New Brunswick are limited to a few isolated areas along the Bay of Fundy and part of Grand Manan Island.

Cenozoic

The Cenozoic or recent era was marked by vertical movements and by the spread of huge ice sheets over the region. The Central Highlands were a centre from which the ice began to move out. Later continental masses from

their gathering ground in central Labrador overran the entire province, smoothing down the surface and carrying blocks of rock and moraine material for great distances from their original location. The tracing back of boulders composed of metallic sulphides in the direction from which the ice advanced was successfully used in location of a zone of mineralization in the valley of the Tetagouche.

The story of the rocks has not yet been completely told. Detailed search for ore deposits is affording an opportunity for the filling in of further details.

Mineral Development

Metals

Small occurrences of copper, lead, zinc, manganese and iron have been known since the middle of the last century and over the intervening years sporadic attempts were made to develop them commercially. Along the older

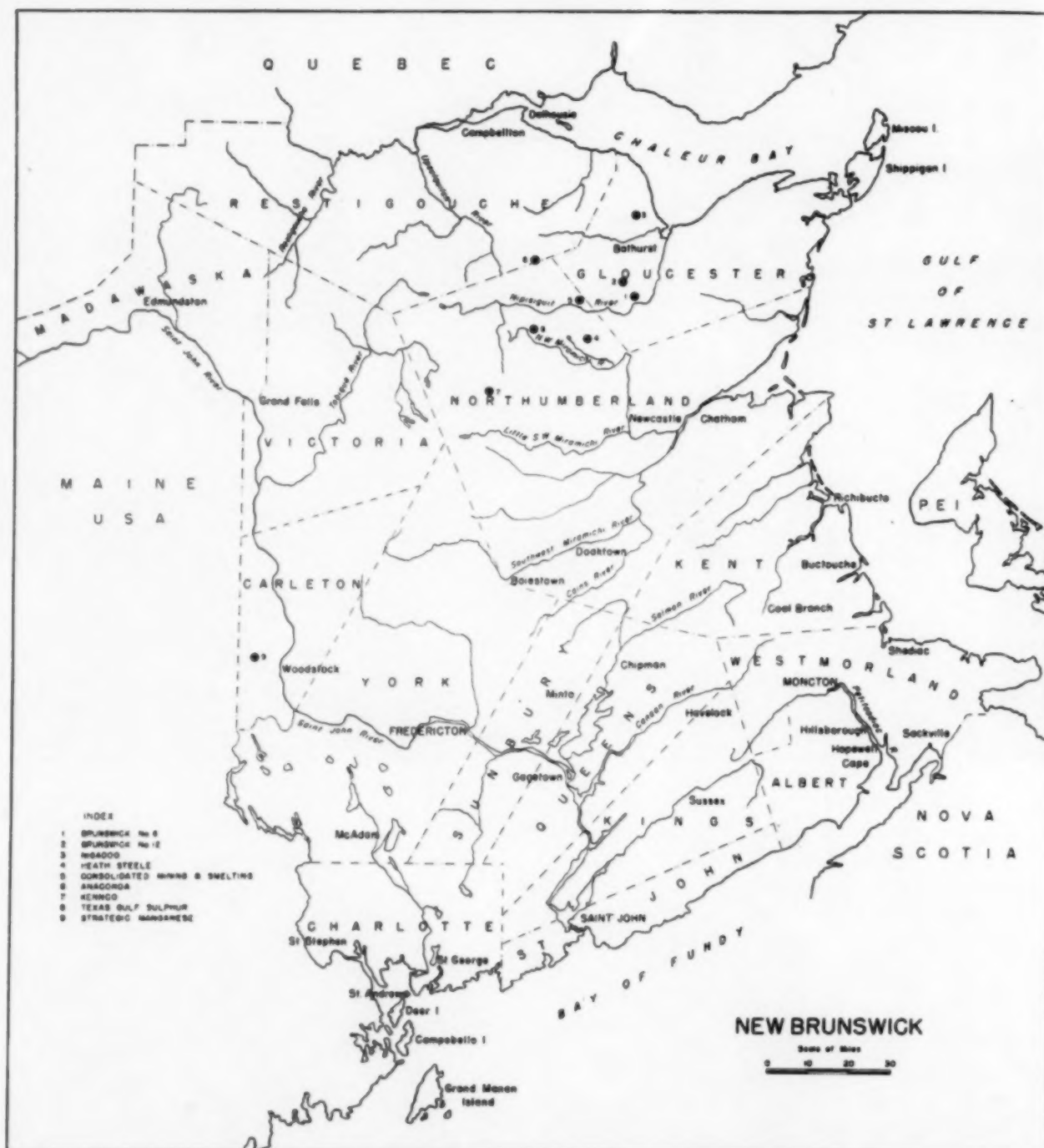


Chart showing the location of major metallic deposits.

settled districts of the Southern Highlands lead, zinc, copper and manganese minerals are erratically distributed. Old shafts and underground workings are found at L'Etête and

L'Etang in Charlotte County, Quispamsis in King's County, and at Turtle Creek, Goshen and Teahan in Albert County. These old sites in recent years have been reassessed in the light

MINING PROGRESS IN NEW BRUNSWICK

of the great interest shown by the mining fraternity in the province because of the new discoveries but at none of them has any deposit of economic importance been found.

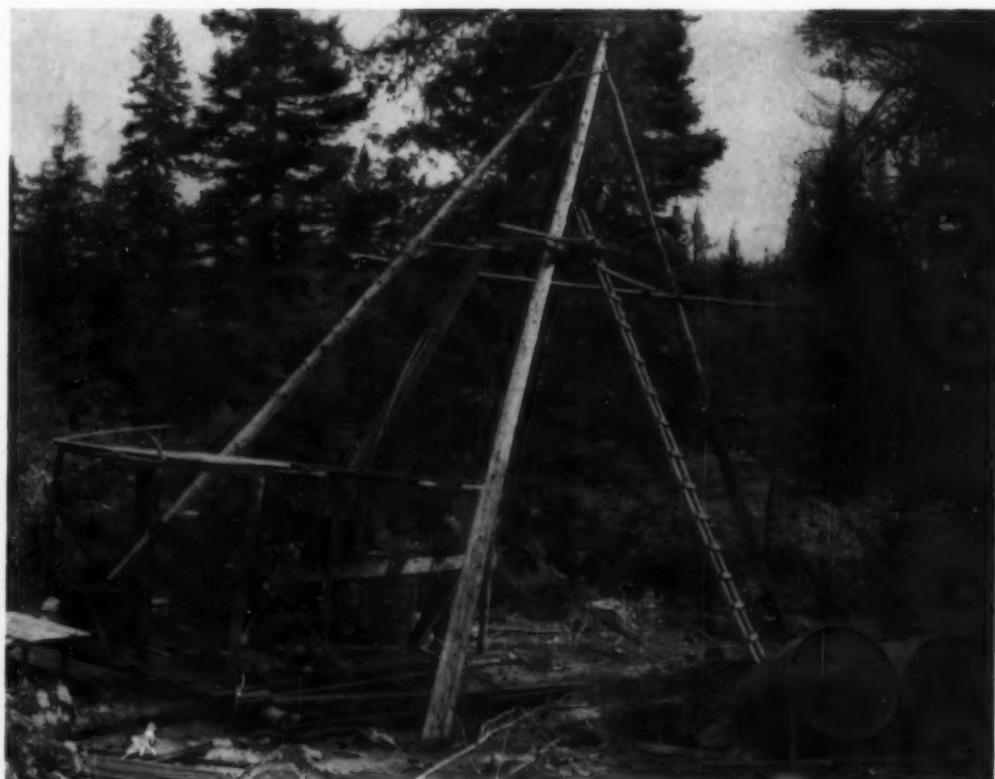
The iron deposits at Woodstock in Carleton County were worked as early as 1848 and a blast furnace with a capacity of seven tons a day was in operation but its low grade and inaccessibility at that time made the operation a marginal one. The new development by Strategic Manganese Limited, based on the production of ferro-manganese, is located in this area. In 1902 an iron deposit at Austin Brook on the Nepisiguit River in Gloucester County was discovered and was actively mined from 1907 to 1913. The Dominion Steel and Coal Company acquired the deposit in 1943 to supply their furnaces at Sydney, Nova Scotia, when there was difficulty in securing sufficient ore from the Wabana mine in Newfoundland due to the submarine menace.

On the Elm Tree River, to the north-west of Bathurst, Keymet Mines Limited carried out mining and milling on zinc-lead ores from 1953 to 1955. Although this operation was small compared to the potential of the recent discoveries, Keymet has the distinction of being the first base metal producer of the province in the modern era.

New Brunswick moved dramatically into the spotlight of the mining world when in 1953 the announcement of a major new field was heralded across the country. The magnitude of the subsequent staking rush may be appreciated from the fact that in 1953 alone over 41,000 claims were staked, and by the end of 1957 there were still 34,000 claims in good standing. As a result of four years of intensive exploration by more than 200 companies, at least twenty sulphide deposits have been found. Of these twenty, it is believed that approximately ten may be developed into mines.

The techniques employed in this search were both geological and geophysical. Geophysical surveys included such methods as aerial magnetic and electro-magnetic, ground electro-magnetic, self-potential, and gravity. All of these depend on the specific properties of metallic sulphides, such as conductivity, magnetism and weight. Following the locating of a favourable area a programme of diamond drilling determines whether or not a mineral deposit is present and if so its grade and magnitude. In northern New Brunswick mining development is being actively carried out by three companies, Heath Steele Mines Limited, Brunswick Mining and Smelting Corporation Limited, and Nigadoo Mines Limited. On several other

Diamond drilling in the Bathurst area.



properties underground exploration has been carried out but these are now in a dormant stage.

Heath Steele Mines Limited

Heath Steele Mines Limited was incorporated in 1955 as a subsidiary of the American Metal Company and the International Nickel Company of Canada to develop several ore bodies in the Little River area, forty miles north-west of the town of Newcastle. The deposits aggregate 7,200,000 tons of ore, averaging 2.2 per cent lead, 5.6 per cent zinc, 1.18 per cent copper, 2.6 ounces of silver and 0.03 ounces of gold a ton. Mining is carried out by means of two open pits and two shafts. At the new 1,500-ton-a-day mill which began producing copper concentrates in January 1957 and lead-zinc concentrates in March of that year, the broken ore is crushed to a fine size and placed in flotation cells. These are large containers in which the crushed ore is treated successively with a variety of chemicals. With one type the lead sulphide is floated on a froth to the surface and with others the zinc, copper and minerals are removed. The end result is the production of concentrates of zinc, lead, and copper which are shipped to Newcastle where they are loaded on boats to begin their long journey to smelters in the United States and Mexico. Here they are treated to obtain refined lead, zinc and copper metal. For this operation a new branch line of Canadian National Railways, the first to be built in the Maritimes for over forty years, was officially opened in November 1957. It runs

from Bartibog, twenty miles north of Newcastle on the main Moncton to Montreal line, to the mine site at Little River Lakes, some twenty-two miles to the west. This new branch not only services the mine but also opens up a large area of valuable forest land.

Brunswick Mining and Smelting Corporation Limited

The Brunswick Mining and Smelting Corporation's Number Six ore body was discovered in 1952 as the result of a diamond drilling programme and a geophysical survey on the old Austin Brook iron property. The Number Twelve ore body, five miles to the north-west on the Pabineau River, was located shortly after the first discovery was announced. The former of these has 28,312,000 tons averaging 4.1 per cent zinc, 1.6 per cent lead, 0.4 per cent copper and 1.4 ounces of silver a ton. Mining plans call for the development of this body by an open pit to a depth of 200 feet. The latter deposit contains 29,287,000 tons averaging 6.6 per cent zinc, 2.4 per cent lead, 0.5 per cent copper and 2.1 ounces of silver a ton. A preliminary plant or pilot mill is in operation.

Nigadoo Mines Limited

Nigadoo Mines Limited was formed by a Dutch organization, the Billiton Corporation, to develop and mine a base metal deposit fourteen miles north-west of Bathurst. Shaft sinking and underground development are

Heath Steele Mines' new 1,500-ton-a-day mill.





The production shaft at Brunswick Mining and Smelting Corporation's Number 12 ore body.

progressing on the 1,000,000-ton ore body. Recently the company announced the acquisition of the Keymet Mines surface plant to carry out tests for the most efficient method for the separation of the metals.

Other Occurrences

In addition to these three companies, others such as Anaconda Copper, Consolidated Mining and Smelting and Kennco have proved up substantial tonnages of similar lead-zinc-copper ore. Though the total ore reserve for the district has not been reported, it has been estimated as 128,000,000 tons.

Mention has been made of Strategic Manganese Limited, which is developing a low grade iron-manganese deposit near Woodstock. On the basis of geophysical surveys and diamond drilling, preliminary estimates of 214,000,000 tons of ore have been made. These are based on ore depths to 500 feet with an average metal content of 13 per cent iron and nine per cent manganese. A prototype plant, using a new process for the treatment of low grade iron-manganese ore with the production of metallic iron and ferro-manganese, has been erected at Niagara Falls, Ontario, and over 5,000 tons of Woodstock ore has been shipped

Start of the open pit at Strategic Manganese at Woodstock.



to it. Prior to shipment the ore is beneficiated to a combined 40 per cent iron and manganese in a small sink-float concentrator built at the property for this purpose. Reports indicate that permanent installations at the mine site will be erected at an early date.

At Burnt Hill Creek, in York County, a small deposit of wolframite, a tungsten-bearing mineral, occurs. In recent years a shaft has been sunk and a processing mill erected.

Antimony occurs at Lake George in York County. This deposit has been known for many years, and in the early 1900s extensive underground exploration and mining operations were conducted. In recent years there has been renewed interest in this locality with no encouraging results, however.

A number of small occurrences of uranium have been reported from various sections of the province, such as Shippegan Island, Hampton and Harvey, but none are apparently of commercial importance.

Natural Fuels and Industrial Minerals

Coal

At the present time almost half of the total mineral production of the province is contributed by coal. This is mined in two districts, the Minto-Chipman area in Queen's and Sunbury Counties and Coal Branch in Kent County. According to old records in Boston,

coal was mined and exported from the Minto district as early as 1639 and some coal has probably been mined more or less continuously ever since. Mining is carried out by both underground and stripping methods. There are nine underground mines, five of which are major operations, and twenty strip mines, thirteen on a large scale. Strip mining is carried out by huge drag-lines which remove fifty to seventy feet of waste rock in order to recover a twenty-inch seam of coal. After the coal is recovered, it is cleaned and loaded by mechanical shovels into large trucks in which it is taken directly to markets or sent to a washing plant for further cleaning. The coal is used principally for industrial and institutional purposes and for the generation of thermal electric power within the province. The industry employs approximately 1,000 men.

Oil and Natural Gas

The occurrence of oil and natural gas has been known in New Brunswick since the early settlement of the country. In 1859, Dr. H. C. Tweedel, an oil refiner and chemist from Pittsburgh, Pennsylvania, drilled several wells and secured small flows of oil. This received little publicity, however, owing to the fact that in the same year Colonel Edwin L. Drake made his spectacular discovery in Pennsylvania. The operations in the province were abandoned



The drag-line in operation at the Minto coal fields.



The Canada Cement Company's plant at Havelock.

owing to the production of oil in large quantities from Drake's wells. The producing area is what is known as the Stony Creek field in Westmorland County. It supplies natural gas to Moncton and Hillsborough and also a limited amount of oil. The same general region contains oil shales but intensive work conducted on them has failed to show them of economic importance at present.

Peat

New Brunswick contains extensive peat bogs. In the north-east section of Gloucester County on Shippegan Island and on the adjacent mainland peat moss is excavated by hand labour, cut into blocks, stacked in piles on the ground and air dried. It is then shredded and packed in bales for shipment. It is utilized as

litter for animals, packing for fruit and vegetables, soil conditioner for horticulture, and insulating material.

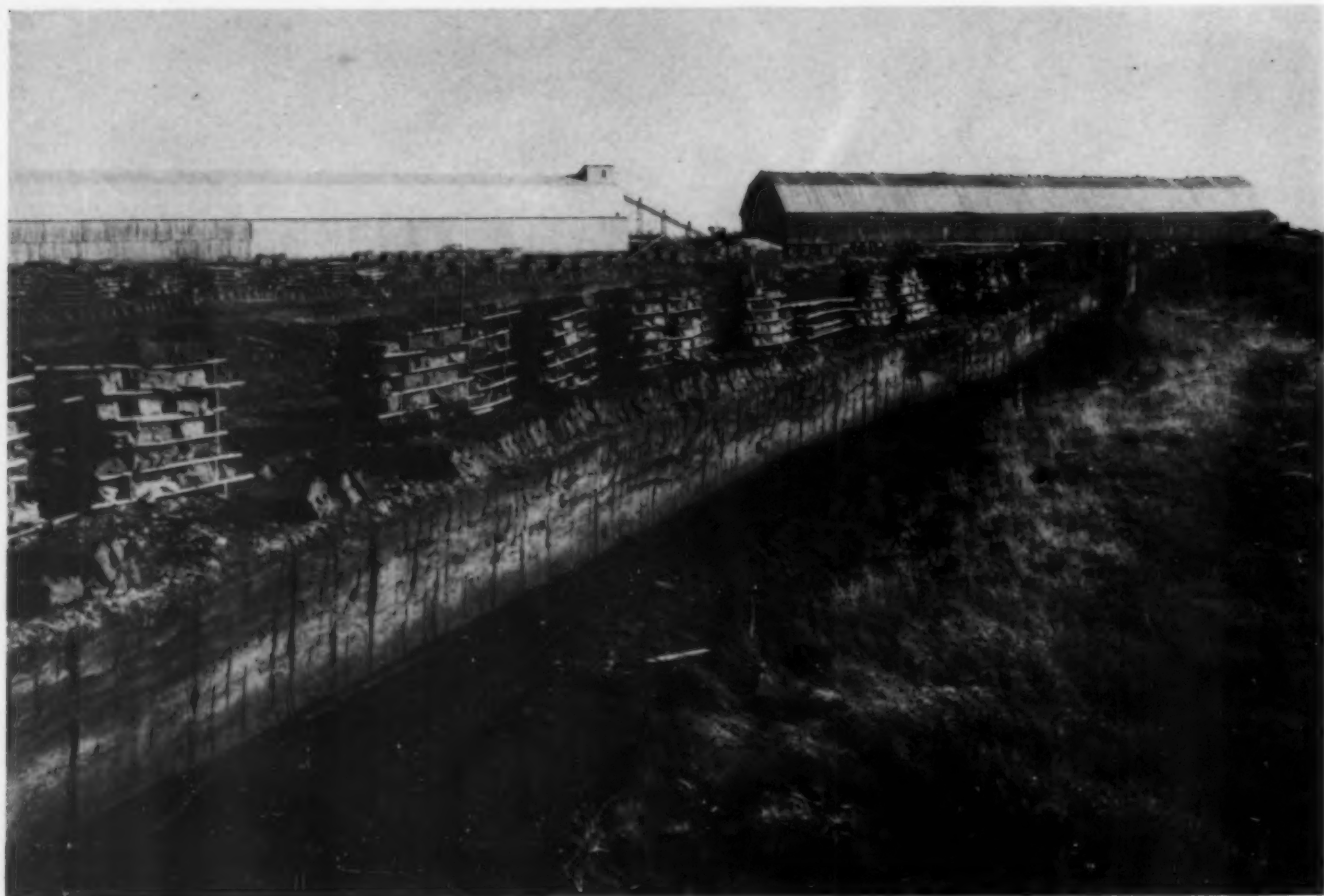
Gypsum and Cement

The Canadian Gypsum Company operates a large plant at Hillsborough in Westmorland County. The raw gypsum is mined near the plant and processed into various types of plasters and wall board within the province.

Cement is produced at Havelock by the Canada Cement Company. It is made by mixing together various proportions of limestone, shale, coal and gypsum.

Stone and Other Structural Materials

Under this head may be mentioned clay products, such as brick and tile, limestone and



A view of the peat bog operation at Shippegan in Gloucester County.

The Canadian Gypsum Company's plant at Hillsborough.





A field camp of the New Brunswick Mines Branch in the Bathurst area.

dolomite for fertilizers and cement, sand and gravel for road material, sandstone for abrasives and building material, and granite and other igneous rock for structural and monumental purposes. In the St. Stephen district some of the finest red and black stone known in Canada occurs.

Conclusion

New Brunswick has long been noted for its scenic attractions, its beautiful agricultural valleys such as those of the Saint John and Kennebecasis, its forest wealth supplying lumber and pulp and paper, its numerous lakes and streams and woods inviting the sportsman interested in hunting or fly-fishing, its coastal waters with beaches and cliffs and inlets where sea fishing and lobster trapping are important industries, and above all for its industrious and hospitable people engaged in a variety of pursuits. These are now confident that base metal mining is at last going to become one of the major industries of their province.

Geo-chemical testing of stream water for metals.





The Tartan Weavers of Cape Breton

by ADELAIDE LEITCH

Photographs by the author

Mrs. J. Barney McLeod, one of Cape Breton's best weavers, works in her home on a bolt in the MacDonald Clan Donald tartan.

THERE IS a traditional skirl of pipes and a wiggle-waggle of the kilts on Cape Breton Island, Nova Scotia, and the Scottish flavour of life comes indoors in winter, into sunny kitchens, small workrooms and sometimes a corner of a country living room. Here, the historic Scottish tartans come slowly off rural looms. Careful fingers, trained to produce a perfect fifty-fifty weave, slide the shuttle back and forth.

From October to May, when fewer visitors travel the high, scenic Cabot Trail and come calling, the tartan weavers are busiest. In workrooms like that of Mrs. J. Barney McLeod, bright wools in dozens of colours are stacked on the shelf. The loom is permanently set up and sometimes, while waiting for dinner to cook or the men to come home, another inch or two is added. Like many of her fellow weavers, she works on order; often, she may have a twenty-yard bolt of tartan on her loom.

Tartan weaving is not hard, says Mrs. McLeod, who has demonstrated the art at exhibitions and on television. She quickly adds, "You do have to keep your rule always before you, though!"

A tartan must have absolute accuracy, the pattern not varying by so much as a thread-width. For no one is more hawk-eyed than the MacKenzie, the MacGregor or the Fraser who is entitled, by birth and tradition, to wear it. New tartans are unheard of in this region which has been called "more Scottish than Scotland." Even the official Nova Scotia tartan, a bright, blue newcomer developed a few years ago, is generally ignored by the traditional weavers of Cape Breton. Working usually to order, they have produced over 140 different clan and family tartans. Some are made up into knitting bags, ties, scarves and other small items; many are intended for kilts.

In the little over a decade that tartan weaving has been a home industry here, about seventy-five women have taken part in it. These rural women at their looms are a part of a thriving Celtic movement in Cape Breton and, like it, have their headquarters at Gaelic College at St. Ann's. Provincial assistance helped to erect in 1947 a permanent \$12,000 craft building on Gaelic College grounds. "A loom in operation in every rural home and more sheep on Cape Breton hills," was the slogan.

At the handicraft centre of the Gaelic College, Mrs. A. W. R. MacKenzie inspects a bolt of finished tartan. She helped develop this industry in Cape Breton. Now she directs the workers and looks after sales.



A tartan must be accurate in design and the weave must be absolutely perfect to prevent distortion in the finished work. The rule, a small strip of paper, is always before the weaver.



The rural women were given free weaving instruction at the expense of the province. Then it was the task of Mrs. A. W. R. MacKenzie, the wife of the Gaelic College director, to develop the simple craft into a precise, Highland industry. Blue-eyed, gracious, she has a quick frown for an off-pattern tartan when she matches edges of new bolts. "Our workers must be craftsmen — not weavers," she says firmly. "We emphasize the *de luxe*."

Some 20,000 visitors stop at the handicraft building each summer, and it takes the weaving women of Cape Breton until the following spring to catch up with all the orders. Scotsmen, visitors with Scottish ancestry, and tourists make up their clientele.

Around the headquarters of the tartan weavers, the rolling hills and inlets reminded the community's founder of his native Scottish hills. Here, in summer, there is Highland dancing and bagpipe practice and from the school rooms come the cadences of spoken Gaelic. But many a kilt that swings at the annual Gaelic Mod is a Canadian product — a tartan from the looms of Cape Breton.



Professor V. V. Belousov of the Soviet delegation to the Eleventh General Assembly of the International Union of Geodesy and Geophysics presents the Soviet Atlas and other Russian scientific books to Dr. M. Woodside, acting President of the University of Toronto, for the university's library.

International Aspects of the International Geophysical Year, 1957-1958*

by J. T. WILSON

Photographs by G. A. Milne & Co. Ltd.

HER MAJESTY, Queen Elizabeth II of Canada, has graciously permitted this society to add the title Royal to its name. This honour will rejoice all fellows and members of the society, both on account of the distinction itself and because it is a recognition of the contribution made to Canadian life by the society. It must be a particularly gratifying award to that small group of men who have devoted great effort to establishing and nourishing the society and to building its journal into an attractive and unifying mouthpiece for popular science and for industry in this country.

It is most fitting, and a further tribute, that His Excellency the Governor-General should grace this, the first Annual Meeting held by The Royal Canadian Geographical Society under its new name. His interest in geography is attested by his travels which have reached every part of Canada, even as far as the North Pole; he is one of the few Canadians who have indeed seen it from sea to sea and from Pelee

to the Pole; while his support of this society has often been demonstrated—the last time by his address to the Annual Meeting a year ago.

Mr. Chairman, I am most sensible of the honour which you have done me by asking me to follow His Excellency and speak at this Annual Meeting, the first held under Royal title.

You have asked me to address the society upon the topic, "International Aspects of the International Geophysical Year, 1957-1958", and my remarks will be concerned with three aspects of this:—the scientific program, the educational influences of the I.G.Y. both upon the public and upon the scientists concerned, and the political significance of the I.G.Y., with its unusual methods of organization, operation and exchange in international affairs.

To attempt to catalogue even a summary of all the scientific projects of the I.G.Y. would be tedious and impossible to undertake adequately on this occasion, so I propose to discuss instead,

*This address was given by Dr. J. T. Wilson at the twenty-ninth Annual General Meeting of the Society in the Lecture Hall of the National Museum of Canada, Ottawa, on 13 March 1958.

the unity of the whole scientific conception, mentioning only a few of the main achievements.

The Earth may be regarded as a patient which an army of Lilliputian doctors are endeavouring to examine. Until this century doctors could examine little more than the external appearance of patients, seated or supine before them, but experience and acute observation enabled the family doctor to gauge and prescribe for many ailments by the pallor of a cheek, the dimness of an eye, the trembling of hands or the irregularity of the pulse. So, until this century, students of the Earth could do little but observe the exposed land surface, because two-thirds of the crust lying under the oceans, the whole interior and the air above were hidden. How much has now changed! Like X-rays which were discovered to travel through the human body, so earthquake waves were discovered which pass through the globe showing us a picture of the "innards". The atmosphere is explored by radio waves, balloons, rockets, meteorites and artificial satellites. The sea floor is being charted by echosounders. The shape and flow of ocean currents is recorded by tracers as isotopes explore the blood stream.

Doctors cannot study a man in fragments only, for every part is related. So it is with the Earth, but only for the past few years has it been possible to place the whole fabric of the world under scrutiny. Henceforth, advances in our knowledge of the Earth will demand studies of each and every part. Thus, when a great earthquake occurs, waves pass through all the Earth, but to see the picture they reveal of its interior we cannot place the Earth before a photographic plate, like a man who is being X-rayed. Instead, the records at 600 separate seismological stations all over the world must be collected, co-ordinated and put together like a jig-saw puzzle. If there are no records from one country, the picture is incomplete. During the I.G.Y. additional seismological observatories are being established. These studies are giving us for the first time a clearer view of how mountains are built. We are realizing that it is only the skin of the Earth which we have been examining before. Now the anatomy

of the muscles beneath is becoming clear.

From these depths are fed volcanoes which provide the material from which continents and mid-ocean ridges have grown—the continents are terrestrial scar tissue formed to heal the fractures left by old volcanoes and mountains on the earth. During the I.G.Y. it is basic information about the Earth's interior that is being sought, but this may lead to useful applications, on the one hand to an ability to forecast earthquakes and volcanic eruptions, which in times past have killed millions of people, and on the other to an understanding of why ore bodies have risen in one place rather than another and of how to prospect for them.

Weather circulates, constantly moving eastward so that predictions in Alaska are based upon information from Siberia, predictions in Russia on data from western Europe, and such observations are freely and continuously exchanged to the benefit of all. The full study of the earth is impossible on parochial or nationalist lines.

Attention has recently been drawn to the



The Right Honourable John G. Diefenbaker, Prime Minister of Canada, with Professor K. R. Ramathan of India, President of the International Union of Geodesy and Geophysics, at the opening of the union's meetings in Toronto in September 1957.

Arctic basin where increased work by the Soviet scientists has led to the discovery of a previously unknown submarine ridge of mountains. This Lomonosov Ridge is the Arctic prolongation of a system of ridges of which the mid-Atlantic Ridge, the Hawaiian Islands Ridge and other submarine ridges in the Indian Ocean are also parts. The scale of these submarine mountains is little appreciated. The mid-Atlantic Ridge is characteristically much wider and in many places higher than the whole Canadian Cordillera between Calgary and Victoria, yet so little is known of these ocean ridges that it was only in 1956 that Professor Maurice Ewing of Columbia University first proposed that all the ridges were connected into a single system. Our ignorance of the floors of the Southern Ocean had been so great that it had not been realized that the ridges in the different oceans are all joined together. If exploration being undertaken during the I.G.Y. proves this suggestion to be correct, then will it not be astonishing that the continuity of a mountain chain 33,000 feet high at Mauna Loa in Hawaii, hundreds of miles wide and 40,000 miles long was only realized two years ago? Does it not indicate how much we have to learn about the oceans? Many maritime nations are co-operating in a co-ordinated plan during the I.G.Y. to map this vast range, which must direct ocean currents flowing between the equator and the poles and hence influence the world's climate.

Through the western plains between Kansas and West Virginia there are exposed in river banks, in road cuts and in coal mines a series of flat-lying strata whose cyclical layering represents a series of several major and 200 minor alternations of varying marine conditions due to seas that repeatedly swept in and out across the low plains 200 million years ago. Similar cycles are found in the beds of Belgian coal fields across the Atlantic.

Again in Nebraska, in more recent times, it is apparent that the rise and fall of sea level in the Gulf of Mexico caused the Missouri River and its tributaries to alternately cut down their beds and to fill them up with gravels in which are preserved bones of those great beasts, horses, camels, rhinoceroses, elephants and

other extinct forms which once ranged the prairies. Recently it has been discovered that these gravels also form a cyclical system and that the changes in the animals were not only due to evolution but also to migration from Asia through Alaska and Canada as the sea alternately covered and exposed a land connection across Bering Strait. Invasion after invasion of animals came vying with one another, until 500 years ago in North America only two of the most fierce of the races survived—the buffalo and man.

Considerations of the cause of these world-wide fluctuations suggest that they were due to the freezing and melting of ice sheets known to have existed in the polar regions at those times. Thus the coal fields of Belgium and United States, the mammals of Alberta and Nebraska, the land bridges between Alaska and Siberia, have all been related to and record climates of the past and perhaps hold secrets for forecasting weather and climate for tomorrow.

Only 11,000 years ago, ice for the last time covered nearly all Canada. Its rapid melting is recorded in a thousand eskers—gravel banks left by the rivers of melt-water—and in a great channel in the Mississippi Valley cut by a river fifty times the size of the present Mississippi. The enormous change which resulted from the melting of the ice must have been due to a drastic warming of the climate which also heralded the arrival of man in the Americas.

In A.D. 1000 a further warming of the climate enabled the Norsemen to discover and settle the land they hopefully called Greenland, but after a time the cold returned so that between 1400 and 1700 the descendants of the Vikings disappeared or became mingled with the Eskimos. The cold of that time is recorded in accounts of roasting oxen on the ice of the Thames and frequent references in Shakespeare.

"And thorough this distemperature we see
The seasons alter; hoary-headed frosts
Fall in the fresh lap of the crimson rose."

At present the climate is warming, the glaciers are melting back and the world's oceans as a result are deepening two and one-half inches a century, but because of local sink-

ing of the land Halifax and New York are sinking ten times as fast as that, and the oceans are creeping up the dikes of Holland even faster and more desperately.

The droughts that in the 1930s set the "Okies" on the move to California are analogous to those which had earlier started the Tartar hordes out of Asia into Europe and China, and even earlier had urged the great beasts to migrate across Bering Strait. Part of the I.G.Y. program is to record the present state of the world's glaciers and the rate of rise of its oceans. As part of this world-wide program, the Canadian Government has installed additional tide gauges, extended its snow surveys, sent expeditions to study glaciers in British Columbia and the Arctic, and sponsored a Glacial Map of Canada. The materials for a study of climate are far more varied than anyone would have suspected even a decade ago.

The desire to explore the upper atmosphere led to the proposal in 1954 that countries should build and launch rockets and artificial satellites as part of the I.G.Y. program. This challenge was accepted and has been successfully met by two countries who have launched satellites in 1957 and 1958—the Sputniks, Explorers and Vanguard. Great as have been the scientific results, the effects upon the public have been even greater.

It is not too much to suggest that the effects on men's ideas will be comparable to the travels of Marco Polo or to the discovery of the New World. It has been said that "In the history of the Renaissance . . . the exploration of the oceans and the colonization of the other hemisphere . . . inaugurated the modern age more decisively than any other series of events has done." The colonization of space is still in the future, but man the adventurer, released in mind from bondage to this Earth, welcomes the forerunner of limitless new explorations:

"And therefore as a stranger give it welcome.

There are more things in heaven and earth,
Horatio,

Than are dreamt of in your philosophy."

The satellites circling the earth in ninety minutes have shrunk the Earth and demand a new philosophy for man's broadened horizons.

They shout the power of science. Many people are fearful and deplore the danger of new weapons. They forget the beneficial transformation of our lives by scientific discoveries, that science heals children when they are sick, provides food in abundance for the western world, and creates warm clothes, heated homes and transport of a convenience undreamt of two generations ago.

These changes have come so quickly that we have not been able to adjust our thoughts and we have become sunk in a mental morass between the twin false philosophies of the soft life and the aimless existence. It seems that when the comforts so long sought by man were suddenly thrust upon us the concept emerged of idleness as an ideal. The change from the firm, upright and mechanistic views of the Victorian era to the uncertainties of the present which are so apparent in formless art, in dissonant music, in existentialist philosophy, seem to spring directly from the rapid undermining of old beliefs by the ideas of Darwin, Freud and Einstein—but now the satellites herald the view that science besides destroying old concepts opens new vistas, and that man so far from being able to lie back and seek selfish comfort faces challenges to which he can and must react.

During the evolution of civilization, man like insects before him has found in the increasing complexity of society a need for specialists. In the most primitive societies like the Eskimos or the natives of central New Guinea, the only expert is the witch-doctor. This first feeble instinct for divine comfort has ripened in more advanced societies into true religion, and to the priest have been added other specialists—artists, soldiers, rulers, builders, engineers, architects, law makers and judges, writers and philosophers, merchants and economists in turn. At the present time it is apparent that the recent revolutions in our society and in our lives are the result of the work by scientists. Science is the element in society added in our time to take its place with the philosophy of the Greeks or the law of the Romans.

Since science is not a replacement for any of the older verities, our society by its addition

has become more complex. The problems of education are now more onerous. How can we train people to know so much? In recent years there has been great emphasis, perhaps not all of it wise, on the methods of teaching and on the effect of learning on the individual. Now there is a move to emphasize the content of what is taught. Can we not improve the content by pruning the tree of knowledge of its less fruitful branches, letting more sunlight through? Why, for example, does the teaching of physics have to start with so dull a subject as mechanics, just because it is fundamental? Would it not be better to start by teaching astronomy—a much more generally exciting subject—and use it as a vehicle to illustrate the laws of gravity and motion, the fundamental ideas of spectroscopy and optics and the elements of nuclear reactions that heat the stars? Let those who continue go back to mechanics when their interest has been aroused. Would it not be better to teach simple algebra in eighth grade instead of using complex arithmetic to solve the same problems, and to introduce calculus in high school so that it will be realized that much of the difficulty always associated with that name is due to a psychological barrier which we have created about it? Why do children have to start grammar when what they want to use are simple phrases such as they first learn in their mother tongue? The ability of Soviet scientists as linguists contradicts the cry that they are only taught science and suggests that we should seek to learn languages as efficiently as they.

The effects of the Sputniks have been as profound on the scientists as on the public, but in a different way. The technical achievement does not surprise them. Instead, they realize their power as never before and know that the public realizes it too. They are beginning to think, much as they prefer the quiet and studious life of a Charles Darwin, that having opened Pandora's box they may have some responsibility for shutting it and guarding the contents while Hope still remains within.

Now that the challenge of education in our times has been faced, it will no doubt be met, but the greater one of international relations remains, involving the problem of whether all

of mankind can achieve some wide-spread measure of happiness and content. The more prosperous half of mankind is divided and the other half is continually on the edge of starvation, inducing perpetual discontent. To feed, clothe and educate all men provides challenges for everyone, but scientists find themselves thrust into a position that requires leadership of the kind they best can give, because they possess the clearest common language between divided nations and the only chance of finding a solution to the dilemma of mankind which is increasing in numbers faster than its food supplies. A few scientists in the past have faced this challenge and have left the laboratory to take an active part in public affairs. Darwin had his Huxley. One Prime Minister of Canada, Arthur Meighen, was educated as a mathematical physicist, but they are exceptions which few other scientists have wished to copy, for the scientists' measure of success is not the usual one. Whereas most of mankind estimates a man's achievement by the value of his work or the extent of its effect, scientists value work by the degree to which they and their colleagues believe that it has disclosed the truth and not by the consequences achieved. Thus it is men like Faraday, Gauss, Maxwell and Henry, the developers of electro-magnetic theory, who are respected by scientists, rather than men like Edison and Marconi who by developing electric light and radio gave practical value to their discoveries.

The discoveries of scientists do not reflect their personalities and have no nationalism. There is no such thing as Canadian, British or Japanese science. Einstein's famous equation, $E = mc^2$, relates to the universe alone. It is quite inhuman.

This property of science is of particular value in international affairs. One of the first Russian scientists whom I met is a professor at the University of Moscow. Three years ago at a meeting in Mexico he had just delivered a paper about some aspects of the interior of the earth when I was introduced to him by the American chairman of the session. The Earth's interior is a good safe thing to discuss freely. It may be divided among the claims of sovereign nations but no one is likely to attempt to occupy it. I

congratulated the professor on his views but expressed surprise that they differed from the only other Russian paper which I had read on the subject. "Oh," said he, "I don't agree with that view at all, you and I would be much more likely to agree," showing that there is no such thing as a Soviet opinion on the nature of the Earth's interior. Nor is there any attitude which could be described as a Canadian one. The only reason for differences of scientific opinion is our present lack of knowledge. Gradually, experiment and observation are reducing our ignorance.

Without doubt most Soviets and most Canadians differ greatly about religion, philosophy, economics, politics and other common topics—so that it is a pleasure in a divided world to discover a field for free and open discussion. This freedom applies also to medicine, agriculture, chemistry, indeed to science in general. It is a privilege to be cherished.

Recently I saw Dr. L. M. Gould, who has charge of American work in the Antarctic. He had just been there and remarked that the American observer at the Soviet base was enjoying his position, while the Russian observer in exchange was one of the ablest and most popular scientists at the American base. The dozen national teams in the Antarctic are co-operating fully and on the best of terms.

In a world which tends to respect magnitude, the economy and efficiency of the organization of the I.G.Y. is remarkable. The whole proposal started in a private and unofficial manner, and its direction has remained in the hands of an unpaid committee. There is no permanent secretariat and on 31 December 1958 the entire organization will be disbanded except for an editorial committee to co-ordinate the publication of results. Of course such simplicity would be impossible if great national bureaus and great United Nations bodies like the World Meteorological Organization did not exist to collect some of the data, and if the sixty-five nations participating did not each contribute enormously. Nevertheless the I.G.Y. has presented a remarkable example of moderation in its unwillingness to set up a new and self-perpetuating secretariat which would have to

be located in some one territory, thus diminishing its truly international character. An essential part of the I.G.Y. scheme is that all information is freely exchanged.

This example of friendly and full co-operation by sixty-five nations in accomplishing studies of man's environment suggests that other scientific problems should be tackled in a like manner. In essence the I.G.Y. operates through the agreement and co-operation of sixty-five sovereign states, each acting separately but according to a co-ordinated plan while the United Nations operates as one supra-national body. Inasmuch as governments are as yet unwilling to relinquish much of their national sovereignty and since they will put more money into ventures which are competitive than those which are not, the I.G.Y. offers a good pattern for further advances in international affairs. There is no question but that in the I.G.Y. sixty-five countries acting in unison and each getting credit for its own efforts have been able to do more and arouse more interest than if the I.G.Y. had been handled as a United Nations scheme. This does not disparage the work of the United Nations Organization, vital in many fields and of great value to the I.G.Y.

I submit, because the International Geophysical Year and its launching of satellites has dramatized to mankind man's ability to accomplish the dream of conquest of space which had long been regarded as impossible, that it will become an event to rank with Columbus' discovery of the New World. Let us hope that its example of harmonious co-operation will be followed in other efforts for the benefit of man. If man can control his behaviour, modern science should enable him to achieve much greater things and a more universal happiness; but the effort now required is a moral one, the scientific road is clear.

Formerly men studied geography because it ruled men's action, now we can study it because the limitations of geography can be increasingly overcome and ruled by man. The limit to man's conquest of the inanimate world now clearly depends upon man's power to control himself.



Directors of the Royal Canadian Geographical Society at the twenty-ninth Annual General Meeting, 13 March 1958. Left to right, front row: Major-General G. R. Turner, Colonel C. P. Stacey, General A. G. L. McNaughton (Vice-President), Major-General H. A. Young (President), Dr. C. J. Mackenzie (Vice-President), Dr. B. R. MacKay. Left to right, back row: Mr. R. G. Robertson, Mr. D. M. Coolican, Mr. K. A. Greene, Dr. J. T. Wilson (Professor of Geophysics, University of Toronto; guest speaker), Vice-Admiral H. T. W. Grant, Colonel A. F. Duguid, Mr. G. M. Dallyn (Executive Secretary and Editor).

THE ROYAL CANADIAN GEOGRAPHICAL SOCIETY ANNUAL GENERAL MEETING

In the presence of His Excellency the Governor General of Canada, the twenty-ninth Annual General Meeting of The Royal Canadian Geographical Society was held on 13 March 1958 in the Lecture Hall, National Museum of Canada, Ottawa. Major-General H. A. Young, the President, presided over the meeting.

After approval of the minutes of the twenty-eighth Annual General Meeting, the President reported on the activities of the Society during 1957, as follows:

"Your Excellency, honoured guests, members of The Royal Canadian Geographical Society and friends:—

"On the 21st of February 1957 we held in this hall our twenty-eighth Annual General Meeting under our old chartered name as *The Canadian Geographical Society*. Her Majesty the Queen has since been graciously pleased to confer on our Society the title of "Royal", a mark of appreciation prefixed to the name of those organizations selected by Her Majesty that are deemed worthy to receive such an honour. Letters Patent to effect the change in name were granted by the Secretary of State as of 4 October 1957. This change in the name

of our Society was duly announced in our issue of November 1957.

"We may, however, happily claim that this last meeting under our old name was most truly vice-regal, for upon that occasion His Excellency the Governor General honoured us by personally presenting to us his inspiring address entitled "Everyman His Own Geographer", the text of which formed a most welcome article in our issue of April 1957, and is proving of sustained usefulness in booklet form.

"During the past year the Society has suffered two severe losses, one in the death of our much honoured and venerable Honorary President, Dr. J. B. Tyrrell, the renowned geologist who maintained his scientific activities till well into his mid-nineties. The other loss touched us very nearly, for in the death of Mr. A. G. Mordy we lost our most excellent Honorary Treasurer whose patient, willing labours were most deeply appreciated by the Society.

"Despite the hazards which we have had to encounter from increasing costs of printing and publishing, we have battled through the year to maintain our recognized level of

standards in text, illustration and general production. At the inaugural meeting of this Society on the seventeenth of January 1930 our president, Dr. Charles Camsell, whose absence tonight we most sincerely regret, set the standard for us when he said, "The objects of the Society are to disseminate by means of this magazine information as to the geographic resources, the people and the culture not only of the remoter parts of Canada but of all parts."

"For nearly thirty years the *Canadian Geographical Journal* has been serving the public in ever widening spheres! The services of writers and photographers who are trained experts in their varying fields have given the *Journal* a prestige in the world of broad culture so that its pages are consulted for authoritative information by cabinet ministers, diplomats at home and abroad, trade representatives, industrialists and educationists all across the country. And on this point we would like to acknowledge with warmest gratitude the ever ready help we receive from all sides, particularly the diplomatic corps, who so willingly answer our questions about their respective coun-

tries; the government departments who confirm or correct our facts and figures; the universities and other cultural institutions who are always ready to help when we apply to them for advice on a technical point. With this friendly expert assistance we can offer to the public our articles and our pictures in full confidence, knowing that each has been brought to the summit of accuracy in its particular field.

"Though our efforts are mainly concerned with Canada, we are glad to publish authoritative articles on foreign countries and during 1957 we enriched our geographical range with articles on the new State of Ghana, the Cyclades Islands, New Zealand, Malaya, Peru, Japan, Hungary and India. All countries have a welcome place in our pages, and they help us to maintain that generous breadth of vision and understanding which is a definite step towards the establishment of peace and mutual toleration in a world of nuclear explosions and H-bombs.

"Last year we issued upon request from government departments and industry reprints taken from ten different Journal articles over a very wide range of subjects, including:—

- Development of Transportation in the Canadian North
- Calgary, the Foothills City
- Winter Sports in Alberta
- A Second Look at Aerial Surveys in Ontario
- Waterfowl Research Station at Delta, Manitoba
- International Geophysical Year
- The Trans-Canada Highway
- Fur Management in Ontario
- Canada's Lobster Fishery
- Maritime Industrial Empire

In addition we were asked to publish eleven new French and English editions of reprint booklets. These booklets — more than a third of a million — bring our total well above the six million mark including some 176 different topics. Thanks to our clients, a goodly proportion of these booklets are in constant use in the schools in Canada.

"You will be pleased to know that fourth printing of the book *Image of Canada* referred to in my previous reports is almost exhausted and that

a fifth printing will be published this year.

"We have the assurance of all readers of the Journal of the acceptance and utility of the Society, its publications and services, but we are increasingly aware that quality of goods and services on which we have concentrated our efforts is not enough. To extend our usefulness by enlarging our membership, your Board of Directors have made plans to put into immediate effect a broad public relations program.

"It is well said that the gods help those that help themselves. In the advertising world the Journal has long been recognized as one of Canada's best media for prestige or institutional advertising. Unfortunately the great potential buying power of members and readers has yet to be recognized. Our new market report, to be published shortly, provides some astonishing facts that will, we feel, bring home to advertisers and advertising agencies the possibilities of the Journal in new fields — and with

increased advertising revenues our burdens of financing will be lightened. I wish to express my deep appreciation to members, without whose co-operation this marketing report could not have been produced, for their very heartening response to our questionnaire; also to one of our Fellows, an outstanding North American expert in the field, who without remuneration directed this project.

"Our core of membership is 10,000 strong, most of whom have a keen sense of the Society and its objectives. We are always glad to hear of their appreciation of the articles published and to receive their suggestions for new topics in the shaping of future contents. But our membership needs to be increased by at least 5,000. This objective cannot be realized without the full co-operation of our members. We ask for your active participation in our task by telling your friends about the Society and nominating them for membership. The directors and Fellows of the Society will share in this task; public relations counsel

(Continued on next page)

His Excellency the Governor General and Dr. J. T. Wilson, guest speaker (right), examine the new Glacial Map of Canada, published by the Geological Association of Canada.



(Continued from page VIII)

is being retained to inform Canadians about the Society, and a coast-to-coast lecture tour will be conducted as part of our extension program. By these combined efforts, we hope to raise our numerical strength and financial status to a level of yet greater utility.

"In closing I wish to take this opportunity of thanking all members of the Board of Directors and, on their behalf, to express particular appreciation for the work of our Editorial Committee, our Executive Secretary and Editor and his office staff."

The report of the Honorary Treasurer was presented by Vice-Admiral H. T. W. Grant. General A. G. L. McNaughton then submitted the report of the Nominating Committee. Ten former directors were re-elected and two new directors were elected, one for a period of two years, the other for a term of one year.

The President announced that following the Annual Meeting there would be a brief meeting of the Board of Directors in the Lecture Hall. He then introduced the speaker, Dr. J. T. Wilson, O.B.E., Professor of Geophysics at the University of Toronto and a Director of the Society.

Dr. Wilson delivered a stimulating address on "International Aspects of the International Geophysical Year (1957-58)", illustrated by slides and recorded music. It was recorded by one of the Ottawa radio stations for later broadcasting. The text of the address is given on page 178.

Dr. C. J. Mackenzie thanked the speaker warmly for his interesting and thought-provoking address. He commented particularly upon the skilful manner in which Dr. Wilson had used music and reproductions of paintings for illustration, and said that it had been a privilege for all those present to hear the address.

Following the Annual Meeting, the Board of Directors met to elect officers and appoint Standing Committees for 1958.



THE TRAVEL CORNER



Modern furniture and plush carpets are comfortably arranged between large cherry wood pillars in the main lobby of the Queen Elizabeth Hotel. In the background to the right is the registration desk over which a homespun tapestry has been placed.

C.N.R.

Queen Elizabeth Hotel, Montreal

Last month, with a great deal of fanfare, Canadian National Railways proudly celebrated the official opening of their new Queen Elizabeth Hotel in the heart of downtown Montreal. The twenty-one-storey hotel, which cost \$20,000,000, is the largest in Canada and has 1,216 rooms. It is the first to provide centralized electronic heating and air-conditioning control and individual dial telephone service from guest rooms. Although owned by Canadian National Railways, it is operated by Hilton of Canada Limited.

On the main floor are the spacious lobby, registration desk, and shops; the main dining room and supper club — *Salle Bonaventure*, with its delicate Louis XVI decor; the *Beaver Club*, an informal grill with its accompanying cocktail lounge, *Les Voyageurs*; *Le Café*, the coffee shop; and the main kitchen. The next floor has been specially designed for conventions. It contains several banquet rooms, a large ballroom, a number of private salons and four exhibit areas. On the top floor there is a luxurious cocktail

lounge, known as *Le Panorama*, whose enormous windows command a magnificent view of midtown Montreal and the St. Lawrence River.

Accommodation for guests on the intervening floors is all that might be expected. There are studio bedrooms which serve as sitting rooms by day and become comfortable bedrooms at night. The bedrooms proper are tastefully furnished and all have large picture windows and individual thermostat control for heating and air conditioning.

The main lobby of the hotel is directly connected with the Central Station concourse of Canadian National Railways by escalators and elevators. The station itself is linked by elevators and inside stairway with the air lines terminal centre.

New Air Fares

Last month the classifications for international air travel were realigned. There are now four categories, which in order of their cost, starting with the most expensive, are as follows: deluxe class, first class, tourist class and economy class.

De luxe class, offered on the finest and fastest aircraft in service, provides the ultimate in comfort and various luxuries. The traveller enjoys excellent complimentary meals and drinks; fine dishes, crystal and silverware; extra cabin attendants; foot rests and space enough to stretch out almost flat in specially designed seats at night. First class provides good complimentary meals and drinks, but no foot rests and slightly less reclining space for night travel. (Berths may or may not be available at an extra charge.) The baggage allowance for both de luxe and first class is sixty-six pounds.

Tourist class passengers are accommodated in rows of five across the aircraft, three on one side of the aisle and two on the other, in seats that recline less than those in first class. On international flights plain hot meals are served free of charge and drinks may be purchased by passengers.

Economy class, the newest one, is designed to attract those with medium incomes who ordinarily might not consider travelling by air. It allows less space for each person than tourist class so that more passengers can be carried. Sandwiches and hot tea or coffee are served free of charge. There are no hot meals and no alcoholic beverages available. The baggage allowance for tourist class and economy class is forty-four pounds. The differences in fares between the four classes are significant. Consider, for example, return flights from Toronto to London, England, at these rates: de luxe \$893.80, first class \$803.80, tourist class \$590, and economy class \$476.60.

It is understood that the major international air lines operating from Canada are all planning to alter the interiors of some of their aircraft to offer the new economy class travel, which is expected to gain preference over tourist class in a few years. Passengers in this class will be carried on aircraft of the same reliability and swiftness as those on most international air routes today. Some air lines will carry all four classes, some two, some only one. The number of overseas flights is being increased to such an extent that no shortage of space is anticipated in any category. Detailed information about the new fares and the services offered by the different air lines may be obtained from travel agents across the country.

Flin Flon Trout Festival

Some 390 miles north-west of Winnipeg as the crow flies is the thriving community of Flin Flon, which has a population of over 14,000 and claims to have one of the highest per capita

incomes of any Canadian centre. The primary industry there is mining, with forest products and tourist trade as secondary industries. But it is the large lakes of the district, some as much as 300 feet deep, that are the focus of attention in summer. Those who know describe the fishing in superlatives.

In view of this, it is not surprising that Flin Flon's most important annual event is its Trout Festival, which attracts many visitors from near and far. It is being held this year for the eighth time, 27-30 June. Besides fishing competitions, there are games, stage shows, a street fair, a golf derby and colourful dances. Among the special events are a flour-packing contest in which husky miners and trappers carry up to 600 pounds, and an eighty-mile canoe race. Fishermen from all over the continent participate in the famous fishing derby, which is the highlight of the festival. Incidentally, derby fishing for lake trout is permitted 18-29 June, and for other types of fish 25-29 June, although the festival does not officially commence till 27 June. First prize for the largest trout taken is \$500, with \$250, \$150, \$75 and \$25 awarded to the runners-up. Perhaps anyone planning to compete this year for the first time should

be warned that the winning lake trout last year weighed forty-two pounds.

Motoring in Newfoundland

Although the road in the vicinity of Terra Nova National Park is not yet completed, motorists will be able to travel across Newfoundland this summer from Port-aux-Basques to St. John's. A daily rail-car ferry will be operated by the Provincial Government between Gambo and Clarenville, from 2 June into autumn. The ferry will leave Gambo at 9.40 a.m. and arrive at Clarenville at noon. It will leave Clarenville at 6.40 p.m. The fare is \$10 one way for each car, and \$2.05 one way or \$3.40 return for each passenger. Reservations should be made well in advance of arrival through Canadian National Railways at St. John's.

Cunard Cruises

The Cunard Steam-ship Company Limited has announced that the liner *Caronia* will make a 108-day voyage around the world in 1959, visiting twenty-five ports in eighteen countries. She will leave New York 20 January, then sail to the West Indies and South America, across the South Atlantic to Africa and from there to

(Continued on next page)

June in Alberta



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HARRY R. WHEELER, Mgr.

(Continued from previous page)

the countries of Asia. An extensive program of shore excursions and inland tours has been arranged. The cruise ends in New York 8 May 1959. Minimum fare is \$3,200.

It has also been announced that the *Britannic* will sail from New York 23 January 1959 on a sixty-six-day Mediterranean cruise, with calls at twenty-two ports. Fares for this cruise start at \$1,275.

EDITOR'S NOTE-BOOK

Lyn and Richard Harrington (*Parks Preserve Africa's Big Game*) are a very well-known husband and wife team, the former a writer, the latter a photographer. They have travelled extensively and have visited many corners of the world, recording their impressions with an artistry that has won them wide recognition.

J. C. Smith (*Mining Progress in New Brunswick*) is Chief Geologist in the New Brunswick Department of Lands and Mines. Although he lives in Fredericton, Mr. Smith spends most of his time in the field, conducting geological studies. His article, published with the consent of the Honourable N. B. Buchanan, Minister of Lands and Mines, is an authoritative record of the history of mining in the province and current developments there.

Adelaide Leitch (*Tartan Weavers of Cape Breton*) is the pseudonym of a well-known freelance writer and photographer who resides in Ottawa. She has travelled widely in Canada and her articles and photographs have appeared in many publications.

Dr. J. T. Wilson, O.B.E., (*International Aspects of the International Geophysical Year, 1957-58*), Professor of Geophysics at the University of Toronto, is a recognized international authority in his field. Among the many honours accorded Dr. Wilson in his brilliant career was his election as President of the International Union of Geodesy and Geophysics for 1957-58, the International Geophysical Year. Dr. Wilson is one of our Directors, and we gratefully acknowledge his active and generous support of the Society. This article is based on his address at our Annual General Meeting in March, 1958.

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PRINCE EDWARD ISLAND
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The Canadian Conference on Education

In the fall of 1956 the Canadian Teachers' Federation decided to call a meeting of representatives of twenty-six national organizations to see if they thought a national conference were desirable and feasible. The result was that nineteen organizations decided formally to sponsor a conference which would discuss problems and needs in education at all levels. Other sponsors included influential groups like the Canadian Legion, the Engineering Institute of Canada and the National Council of Women. Committees were appointed on each of the eight subject areas into which the conference would be divided: (1) Buildings and equipment (2) Education for leisure (3) Financing education (4) Higher education (5) Organization and curricula (6) Role of the home in education (7) Special needs in education (8) Teachers, quantity and quality.

The very distinguished neurosurgeon, Dr. Wilder Penfield, O.M., accepted the office of chairman of the conference, and Mr. George G. Crookery of the Canadian Teachers' Federation was appointed director.

In order to ensure that the conference would be truly representative, no one could attend except through nomination by a national organization; it was not just a conference of professional educationists but of selected delegates who might be concerned directly or indirectly with education. It was arranged that the meetings should take place at Ottawa, in the ball-room of the Chateau Laurier, 16 — 20 February, 1958. It was the largest national educational gathering for more than thirty years and was attended by about 850 delegates; it aroused unusual interest in press, radio and television. The reason for this special attention was summarized in Dr. Wilder Penfield's happy phrase when he called it "a people's parliament for education."

The general design of the conference programme consisted of addresses on the first day; of workshops or discussion groups throughout the second and third days; and of reports and consideration of resolutions on the fourth day. The chairman took as his opening subject, "The Testament of the Common Man", in the course of which he said, "Education is our only hope, our challenge, in the peaceful competition of the future. But, if war should come, our wits might still save us. We should be well advised to spend, on the cultivation of those wits, a sum comparable with what we are spending on explosive defence."

One of the most keenly anticipated parts of the programme was an international panel on the purposes of education. The speakers were: for the United States, Dr. William Carr, Secretary of the National Education Association at Washington; for Canada, Dr. A. W. Trueman, Executive Director of the Canada Council; for the Soviet Union, Mr. Alexei S. Tovstogan, Cultural Attaché of the U.S.S.R. Embassy, Ottawa; and for the United Kingdom, Sir Ronald Gould, General Secretary, the National Union of Teachers of England and Wales. There was also a panel of non-educationists who thought that high school courses are too easy and that students should be made to work harder.

The final day of the conference was devoted to hearing reports from each of the eight workshop groups, voting upon resolutions, and an assessment of the accomplishments of the conference by Sir Ronald Gould, who in the course of his remarks, epitomized the whole situation in one most succinct phrase, "All you really need is a good teacher put in front of a small number of children in a suitable physical environment."

The conference was brought to a close by a speech from the distinguished chairman, Dr. Wilder Penfield, who described the gathering as "a people's parliament for education."

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Boulevard Career

by Madge Macbeth

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Mrs. Macbeth's *Boulevard Career* distils her pithy, sparkling autobiography into a mere 230 pages. Yet, this is the kind of book that may be dipped into at random, according to one's mood or special interest, for the gold of a life lived to the full or humorous descriptive gems whose radiance lingers on in the memory. This reviewer would take issue with friends who feel that such a work must be read through from beginning to end for proper enjoyment: it is far from being a complete account of its writer's life—something quite unnecessary when incidents remembered yield such a wealth of beauty and truth, even from episodes that must have seemed trivial or grievous when they occurred, but which ultimately merge into a pattern of rich experience that marks one of the great creative personalities of our country. Mrs. Macbeth, an American by birth, has loved Canada deeply from the time of her first arrival here at the age of twelve. Her glowing tribute to Hellmuth Ladies' College in London, Ontario—she was one of its last graduates—helps us to understand why she should have become so devoted to the clean, kindly new way of life it so splendidly represented. Ultimately her courage, wit and determination have profited by every trial and triumphed over sore adversity to make Madge Macbeth a leading figure in the emancipation of Canadian women: through journalism, the production of sixteen stimulating books, a large share in promoting our Little Theatre movement, and by uniting women from coast to coast in sympathy and understanding through the medium of her lecture tours.

Boulevard Career presents, too, an astonishing variety of insights into her travels through Spain, Latin America and Yugoslavia, with sufficient detail to whet the appetite for more: to see the places so delightfully touched upon and to make them a part of one's own experience, whether abroad or at home. As a corollary to her brave and joyous song of faith in Canada (she is a citizen of the world, as well), it is heartening to know that Canadians, who seem to be signally successful in winning the esteem of other countries, are travelling more widely than ever before.

A. E. H. PETRIE.

Mr. A.E.H. Petrie is assistant head of the Prints and Drawings Division of the Public Archives of Canada.



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The Encyclopedia Canadiana (Volume 1)

Edited by John E. Robbins

(The Canadiana Company Limited,
Ottawa, \$129.50
set of ten volumes)

Surprisingly, multi-volume national encyclopedias are rare in general, and in the English-speaking world they are almost non-existent. Canada is unusual in having had one or another of them available for many years now. At the turn of the century, John Castell Hopkins F.R.G.S., himself an animate reference book, published *Canada: An Encyclopedia of the Country*, in six volumes. This work, although for long invaluable, was however less comprehensive than its title implied; moreover, the arrangement was not alphabetic. In 1935 a team led by Dr. Stewart Wallace put out an up-to-date *Encyclopedia of Canada*, also in six volumes (with a 1949 supplement on Newfoundland), that covered a wide variety of topics from the Aaltanhash River, British Columbia, to Zurich, Ontario. It was sparingly illustrated with good-quality photographs and coloured maps. In 1952 the rights to this work were acquired by the Grolier Society of Canada, which then charged Dr. John E. Robbins to head up a team of staffers and contributors to produce an entirely new encyclopedia. This has now been done, and the ten volumes are appearing at approximately monthly intervals, beginning December 1957.

Everything about the *Encyclopedia Canadiana* is new, even the title. It may be that there was a technical obligation to eschew the old and unambiguous title *Encyclopedia of Canada*, but whatever the reason for the change the result is for the worse because many people will wrongly assume that the *Canadiana*, on the analogy of the *Americana* and the *Britannica*, is international in scope. This is one of two criticisms I have to make, and they had better be stated here and now; then the more important task of drawing attention to some of the many merits of this fine work can be done without interruption. The second criticism is the absence of pronunciations—they are needed for only a small fraction of Canadian proper names, and the space demand would have been trivial.

Printed in double column with a good typeface on beautiful paper, this first and necessarily typical volume covers all "A" and about half of "B" in the space of 412 pages. The articles range in length from a line or two on the smaller place names to several pages on subjects like

aluminum and banking, and as far as can be judged from spot checks the length distribution is unexceptionable. In instances where the reader wants more detailed information than an encyclopedia can reasonably be expected to furnish, he will almost certainly find that the appropriate entry has a good bibliography. Topics in which up-to-date-ness is important—aviation is an example—will be found to be brought right up to the mid-1950s.

Illustration is unusually rich; nearly every page has one or more pictures and all are good. There are photographs, line drawings, charts, and (in this volume) a notable collection of ninety-six coloured photographs of Canadian birds and bird scenes in natural habitat. Volume ten is to contain a new full-colour atlas of the country.

The charts and pictographs deserve special mention. In a work of this sort the practice is usually to scatter many dry and formidable statistical tables throughout the text. This is a mistake. Anyone who wants detailed figures about production, resources, populations, and so forth, does not turn to an encyclopedia but to the year books and the latest government publications. The proper function of an encyclopedia is to give reliable and easily digested approximations to, and summaries of, the raw data. The editors of the present work have obviously realized this and have cast the statistical material into visual forms that are models of their kind. An outstanding example is provided by the article on the one province that gets into the first volume, namely, Alberta. Twenty-four pages are devoted to Alberta, and the opening six or seven are largely given over to coloured maps and charts from which a really impressive amount of information can be swiftly and painlessly acquired.

All in all, the import of this volume is that, by the time its tenth successor is available, Canada will at last have an encyclopedia worthy of its subject, glowing alike with history and with the surging contemporary scene. And its value as an ambassador will be incalculable.

N. T. GRIDGEMAN

ERRATUM

Vol. LIV, No. 5, p. 214: We regret that there was an error of statement concerning Sir John Abbott. He did not hold the office of Solicitor General, but was a member of the Privy Council and Minister without portfolio under the Macdonald administration, (1878-1891). In 1887, Abbott became Prime Minister for a short period after the death of Sir John Macdonald in 1891.

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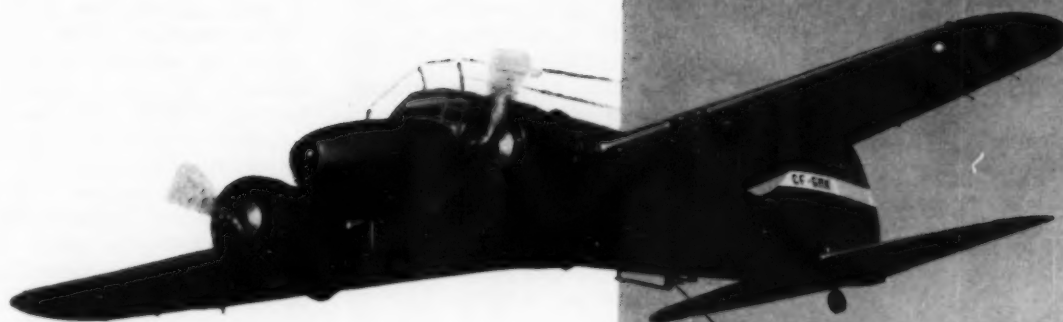
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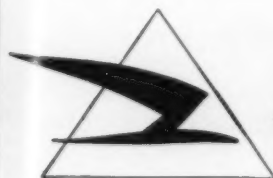
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An Introduction to Social Anthropology, Volume Two

by *Ralph Piddington*
(Clarke, Irwin and Company Limited,
Toronto. \$6.75)

With this second volume Professor Piddington's magnum opus is brought to completion, and not only the student (for whom the author primarily writes) but the Common Reader (in Dr. Johnson's respectful meaning of the term) will find here virtually everything he can reasonably expect in the way of introduction to that branch of anthropology that deals with living man as a social animal. The emphasis is on primitive man, although in keeping with the fact that the affairs of the sociologist and the social anthropologist have been commingling in recent years, there is a good deal of incidental material on contemporary civilization. It all adds up to a fascinating book—and a well-written one.

We can be proud that it is really only in our own times that a great civilization has at last admitted that it could learn anything from the way of life of primitives. Other civilizations, as well as our own until two generations ago, have treated them with either brutality or indifference or, at best, with amiable contempt. If indeed we are less bumptious in our

approach to the forest pygmy and the lonely Eskimo, it is in large measure due to the labours of Westermarck, Radcliffe-Brown, Boas, and Malinowsky, and of a hundred more like them. Furthermore, we have learnt the bitter lesson that savagery is not an attribute that will usefully distinguish underdeveloped societies from our own. And having jettisoned the naive assumption that because we do not use certain words, the things they stand for do not exist, we find that our own lives are every bit as enmeshed with tabu, magic, and myth as those of the Trobriand Islander. We are, or should be, humbled to discover that one of the few reliable indices of civilization is a high suicide rate.

A notable feature of the modern social anthropologist is that he is not content merely to spend three weeks interviewing his subjects through an interpreter and then to return to his library to link his observations with the published background. Instead, he tries not only to live months or even years in the society, but to learn the language and in general to get under the cultural skin of the people. Dr. Piddington is a notable exponent of this attitude and it informs his writing. In the nine chapters of the present volume steady stress is laid on the interactions between culture

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and physical environment on the one hand, and between primitive culture and sophisticated culture on the other. In this later connexion there is much material that should be required reading for anyone whose work brings him in contact with underdeveloped peoples.

Over and above all this there is a wealth of descriptive field work and a thorough discussion of innumerable theoretical and practical problems in social anthropology. The bibliography runs to nearly eight pages. Regrettably, and in contrast to Volume One, there are no photographs.

N. T. GRIDGEMAN.

Mr. N. T. Gridgeman is statistician to the Division of Applied Biology at the National Research Council. He has made a special study of vitamins.

* * *

The Malta Directory and Trade Index

(Published by the *Malta News*, Windsor, Ontario. \$3.75)

This seems in every way a worthy successor to the first edition. It is three books in one. The first surveys the historical background and current problems of Malta, touching lightly on economy, commerce, law, education and trade unionism. It then deals in detail with local industries, classified by commodities, and concludes with a note on tourism, transportation and hotels.

The second section is a Trade Index, including nearly 3,000 separate Maltese firms in alphabetical and classified lists. Lists of cable addresses and trade marks complete this section, which justifies its description as "indispensable... in the offices of businessmen and others in Malta". The same can be said for those who would trade with Malta.

The final division is a Year Book, which includes data on government, the church, the professions, the services and organizations for sport and culture. It offers a statistical summary of Maltese trade, and notes on postal regulations and publications. It concludes with a bibliography of English and Italian works on Malta.

This is a thorough, painstaking and useful work of reference. It may be used to advantage by anyone interested in Maltese affairs.

ROGER BULL.

Mr. Roger Bull is an assistant Trade Commissioner in training, in the Department of Trade and Commerce at Ottawa.

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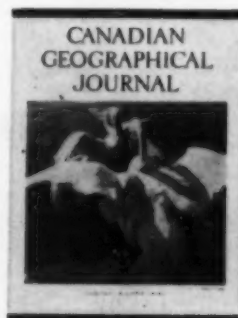
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